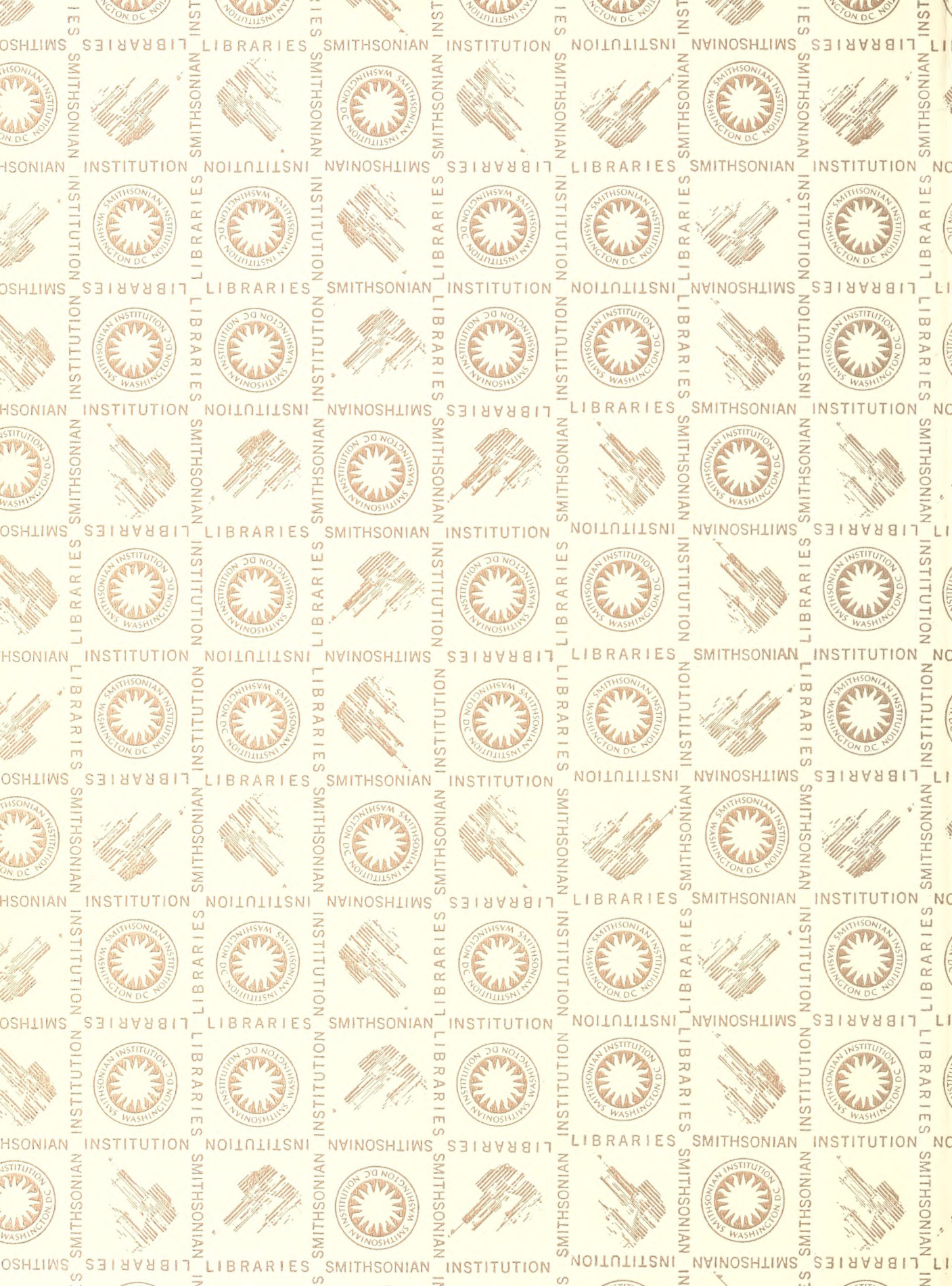
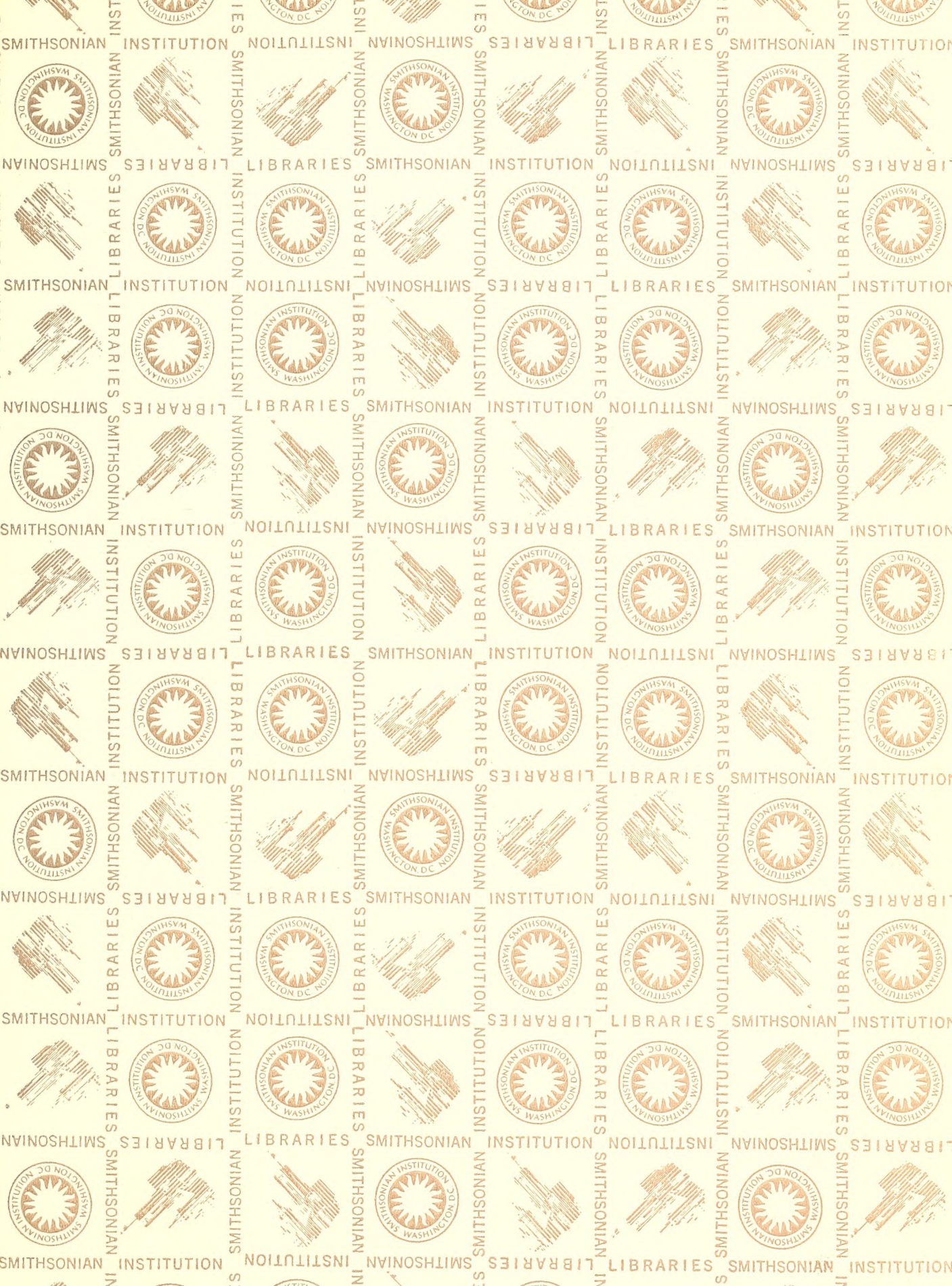

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1D WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

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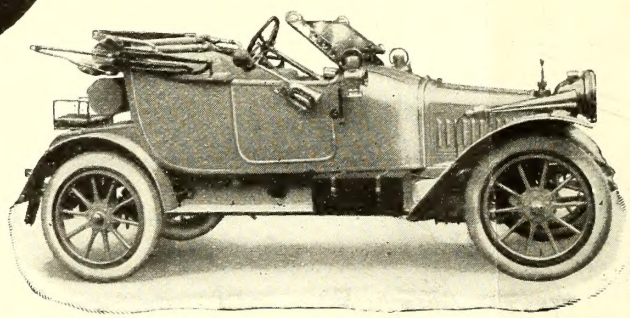
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MATTERS OF MOMENT.

A GLANCE BACKWARD.

With this number The Aeroplane begins its third volume, and its second official year of life, and nothing can show the wonderful advance aviation has made in the past twelve months better than a comparison of the contents of The Aeroplane of a year ago and those of to-day.

At that time we were all full of interest in the "European Circuit," and were all more or less doubtful whether any of the machines would get through. As a matter of fact, a number of them did not get through, and actually only one machine completed the course intact.

Even then, despite a certain number of big flights, anything over a hundred miles in a day was considered something quite out of the ordinary. To-day, a hundred miles is merely looked on as a school pilot's ordinary day's work. In the last week of June last year Mr. Pixton made what was at the time a really wonderful flight for the Manville prize; this year, in spite of a wind which was practically as bad, M. Verrier and Mr. Hucks calmly fly across country to Mr. Grahame-White's wedding and back.

Then the account of the week's work at the various aerodromes occupied, as a rule, a little over a page of The Aeroplane; to-day it is difficult to keep it inside three pages, despite the most strenuous condensation. Then we had ninety-nine certificated aviators as the result of three years' flying; to-day we have two hundred and fifty.

Then we had no aerial defences of any kind. Only three naval officers were able to fly, and the Navy owned no machines. Although a number of soldiers had taken their certificates, there was practically no such thing as a properly organised military flying corps, and the nucleus which then existed only owned about two machines which could possibly be called modern even then. To-day the Royal Flying Corps has been formed on a thoroughly sound basis which permits of its being developed into a force not only equal to but stronger than that of any of our foreign rivals. It has at its head men who not only understand the Service side of their work, but the possibilities and limitations of aviation. In both the Naval and Military Wing there are officer aviators who, as fliers, are the equal of the best professional pilots, and it is said by those who have an intimate acquaintance with the military aviation establishments of both France and Germany, that the average quality of the flying done by the officers of the Royal Flying Corps is considerably higher than that of either of the nations mentioned.

A year ago the Army Aircraft Factory, as it then was, produced the most ridiculous attempt at an aeroplane which has ever been seen; to-day, thanks to the sound knowledge of Mr. de Havilland, and those quiet members of the staff of the Factory who are not seen or heard of, the Factory has turned out three machines which are admitted to be first class.

A year ago most of the War Office officials were still unconvinced as to the utility of aeroplanes, and no great assistance was given to the progressive section by the fact that the then Secretary of State for War, Lord Haldane, evidently infected by his admiration for all things German, believed in dirigibles rather than in aeroplanes; to-day orders are waiting for any British manufacturer who can turn out a thoroughly good aeroplane, and the War Office has at its head in Colonel Seely a Minister who, while by no means blind to the possibilites of dirigibles, probably realises better than any War Minister in the world the possibilities of the aeroplane.

A year ago the British public knew nothing whatever about aeroplanes, and cared a great deal less; to-day any Saturday afternoon or Sunday sees thousands of people at Hendon, and would see thousands of others at any other aerodrome which cared to make its attractions properly known. From all parts of the provinces applications are being received by various proprietors of aeroplanes that they will arrange exhibition flights, and when aerial tourists such as Mr. Ewen, Mr. Slack, and M. Salmet land they are received with the greatest enthusiasm.

Mr. Grahame-White's war-cry, "Wake Up England," is evidently taking effect. The country is waking up. Despite the mangled, garbled, exaggerated, inaccurate, and generally unreliable accounts of all things connected with aviation appearing in the daily Press, slow-minded, over-fed John Bull is beginning to stir in his sleep, and when once he is awake, the colossal inertia of the Englishman, kept moving by Celtic driving power, will carry all before it, on the principle that there is always hope for a lazy man, because if you once start him working he is too lazy to stop. For these reasons the prospects of all connected with aviation are very bright to-day, and there is a certain satisfaction in the thought that The Aeroplane has played its little part in awakening the people of this country.

GERMANY AND OUR DEFENCES.

That inimitable philosopher Mr. Dooley, discoursing to his friend Mr. Hennessey on the subject of England and Germany, remarked: "Hinnissy, ye'd be surprised at what two proud nations will do when they're scared to death of one another." On this and on many other occasions Mr. Dooley sums up a whole philosophy in one phrase.

Not only are the English and Germans scared to death of one another, but France and Germany are also. As a result we see Germany, who already has a big lead in her experience with dirigible balloons, increasing her aeroplane forces with the greatest possible rapidity, and France, with her big lead in aeroplanes, now paying increased attention to dirigibles; but we find this country also becoming alive to the importance of both branches of the Air Service.

Probably nothing has done more to emphasise the importance of this branch of our defences than the recent long journeys by the two Zeppelin dirigibles. The military Zeppelin a week or two ago covered a distance over German territory equal to a flight from the German coast to the English coast, but since then the *Victoria Luise*, which is the property of the Zeppelin Company, journeyed from Düsseldorf right across Holland and along the Dutch and German coasts to Hamburg, and on the 27th the same airship left Hamburg at 6.15 in the morning and flew over Cuxhaven to Heligoland, which was reached at 9.30. From Heligoland she turned south-west to Nordeney and Borkum, and thence inland, *via* Wilhelmshaven and Bremerhaven, back to Hamburg.

Strangely enough, the British Press paid no attention to the fact that a couple of months ago a German military aeroplane flew from Heligoland to the mainland, a feat which is actually of more importance than the voyage of the Zeppelin, as it indicates the intention that Heligoland (once a British possession) shall be used as an aeronautical base. The general feeling in Germany can be gauged from a remark in the *Lokalanzeiger*, that "an airship that has once reached England will have no difficulty in returning *when it has fulfilled its object*, for westerly winds are prevalent." This remark and the sudden prominence of Heligoland provide the key to the situation.

The real importance of Heligoland is not that it is any nearer the English coast than certain points in the Duchy of Oldenburg, but that owing to its isolated position experiments can be carried on there with a secrecy which cannot exist on the mainland.

It should be particularly noted that the military Zeppelin did not fly over Holland, as that would have been, *ipso facto*, an act of war, but the practical difference between the military Zeppelin flying over Holland and the *Victoria Luise* doing so, is as the difference 'twixt Tweedledum and Tweedledee.

It is fairly generally recognised that in the event of war with Germany, Holland would cease to exist, just as Belgium would cease to exist in a war with France. All the Dutch and Belgian frontiers are simply a network of strategic railways along which troops would be poured in such masses that it would be hopeless for the tiny Dutch or Belgian armies to resist, and the great concentration of German forces would be made in those countries. The Dutch ports would merely become German naval bases, and the actual attack on the English coast would come from that direction.

In the meantime, however, no doubt quite a large amount of aerial scouting will be done from the German coast, and it is quite possible that at almost any date the *Victoria Luise*, which it would be very hard to distinguish from a military Zeppelin at a considerable height, may take peacefully civilian trips over the ports on our eastern coast.

It will not have escaped notice that already preparations are being made to establish a naval aviation base at Harwich, and it may be taken for granted that before very long we shall have a string of similar stations stretching from Caithness to Dover. It was revealed some time ago in Parliament that it is the duty of the British North Sea Fleet to keep closely in touch with the German North Sea Fleet, and that the position of the said Fleets is notified by wireless to the Admiralty at intervals of a few minutes both day and night. It will doubtless be necessary, in the not far distant future, to keep in similarly close touch with Germany's aerial forces over the North Sea.

For this purpose we may need dirigible balloons certainly as fast and possibly as large as the Zeppelins, but our best scouts, after all, will be small, high-speed aeroplanes. Not the large, comparatively slow hydro-aeroplanes such as we should use in attack on trespassing warships of the lighter class, such as destroyers and scouts, but ninety-mile-an-hour machines which are capable of rising as fast as any Zeppelin and of flying twice as fast.

A British dirigible, sighting a German dirigible over the British coast at a distance would have a long chase to catch her before she got back to her own base, and, at any rate, she would be well outside the three-mile limit before she was caught. Also a British airship would probably be seen as soon as she saw a German. What we need are little aeroplanes which will not be seen from above until a trespasser has come well within the aforementioned three-mile limit. Half a dozen of these small, fast, lightly but effectively armed machines let loose at once would quickly prove that, despite the *Lokalanzeiger*, an airship which has once reached England would have considerable difficulty in "returning when it had fulfilled its object," and it is well to remember that if it is bent on obtaining information its object is not fulfilled if it does not return at all.

A Zeppelin Lesson.

The destruction of the Zeppelin dirigible *Schwaben* should act as a wholesome lesson to those enthusiasts who have recently been endeavouring to start a panic in this country because we have not reached the same stage in the construction of dirigibles that Germany has. Dirigibles, in their way, are undoubtedly good things, but at the present moment they present no real danger to any enemy who is well equipped with aeroplanes. It will, therefore, be as well if we bide our time and let Germany carry out the more expensive experiments for us. Apparently the *Schwaben* was destroyed in the old familiar way by being caught out of her shed in a strong wind, and being torn to pieces while being held in the open.

The cause of the fire which eventually destroyed her entirely has not been satisfactorily explained, but, at any rate, there is the lesson to be learned that the dirigible cannot yet be handled on land in a big wind, and until Germany has evolved some really satisfactory method by which the bigger dirigibles can be got into their harbour safely in a gale, it hardly seems worth our while in this country to spend much money on them.

It certainly would be worth while to have, say, a small Lebaudy to replace the one which was destroyed at Farnborough, and it might be worth while rebuilding, on a smaller scale, the remains of the naval dirigible, a goodly portion of which still exists at Barrow. With these for experimental purposes we could probably train enough officers and men to form the nucleus of a really fine dirigible corps as soon as Germany has done experimenting on our behalf. But it is to be hoped that newspaper agitation will not lead the Government to throw away money on expensive dirigibles while we are so far behind with our aeroplane establishment.

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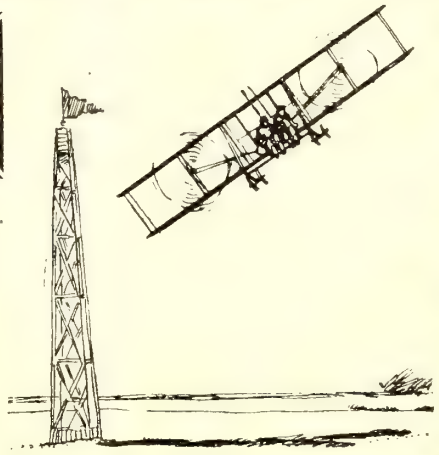
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"The Aeroplane in War."

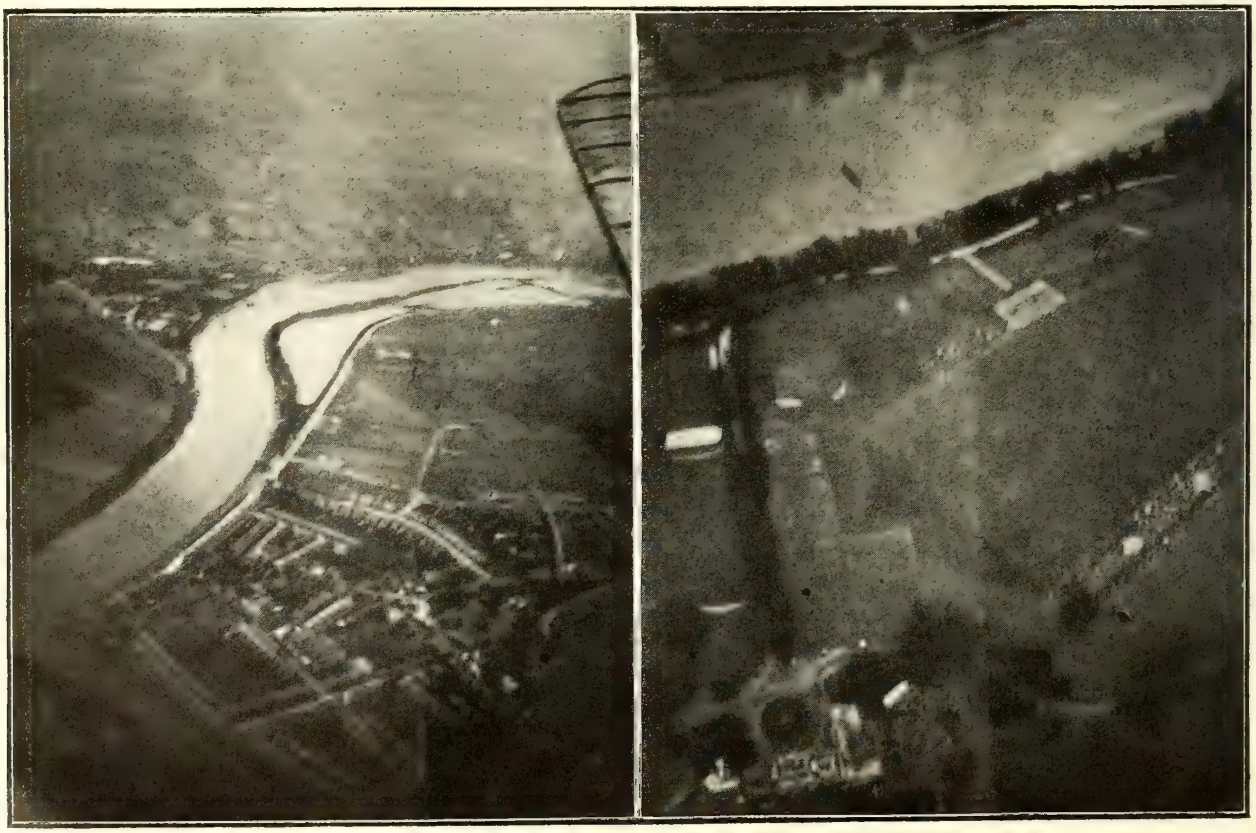
(A Review and Some Comments.)

BY W. E. de B. WHITTAKER

Each science, new and old, has its literature, and aviation is no exception to the general rule. Many have written on the subject, some with intelligence, but most with an entire lack of knowledge. The purely scientific side has been adequately dealt with, and the popular view of flying has also had its chroniclers. The application of aviation to military purposes, possibly the most important of all, has received little serious attention. In France two or three officers have produced highly technical monographs on the military use of aeroplanes; a few articles have appeared in the columns of the military journals in different countries; but beyond that, little has been done. There is, consequently, plenty of space for further treatises on the destructive qualities of aeroplanes. There are many ways of writing books about flying and its possibilities. Soldiers who are not aviators can give us useful opinions, and civilians who are aviators, but have no knowledge of the art of war, can equally tell us much of aviation and how they would apply it to the needs of the Army and Navy. Their views are often of high value. In the latter class one would include "The Aeroplane in War," by Claude Grahame-White and Harry Harper. Mr. Grahame-White's experience of the practice of aviation is almost unrivalled, and a public statement of his views deserves more than passing attention.

The book is divided into several sections, each devoted to different points of the subject. In the early part there is a brief and lucidly written history of the progress of aviation, military and civil. In Section II the authors speak of the manœuvres in Picardy during the autumn of 1910, when for the first time aeroplanes were used for military purposes. They print a report made by Lieutenant Ménard at the conclusion of a reconnaissance which he made on a Farman biplane piloted by Lieutenant Sido. This report covers a period of thirty-five minutes' observation (they were in the air one hour and five minutes, and covered a distance of about sixty kilometres). No close detail is given, and the report lacks definition. The authors say that "the completeness and detail of this statement certainly surprised the officer who received it." This is, surely, hardly a correct comment. The Staff were surprised that a report arrived at all: it was not favourably impressed by the details given. I was present personally at the conclusion of one of the Sido-Ménard scouting expeditions, and I heard a distinguished General Officer commanding a French division say: "Yes, it is very interesting; it tells us enough to make for confusion, but it does not give us those facts for which we seek." Perfection was expected immediately. The use of aeroplanes in these manœuvres certainly caused the opposing forces to change their plans completely on several occasions; and while it proved the great utility of the aeroplane as a scout, it also demonstrated indisputably how easy it was for even a large army momentarily to alter its dispositions in order to mislead an opposing aerial observer. This trial confirmed the position of the aeroplane as a weapon of war.

In their remarks on the results obtained during the manœuvres, and elsewhere in the book, the authors have an unfortunate habit of quoting "one of the chief French military experts," or "a leading military authority," without giving any clue to the identity or rank of the persons



These photographs were taken by Captain Mark Kerr, R.N., while flying to Ranelagh with Mr. Hamel recently. The left photograph shows the reservoirs at Barnes. The right was taken over the front of the machine while diving into Ranelagh. The white speck on the extreme right is the King's pavilion.

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quoted. Such indefinite citation of authorities is no confirmation of statements made. It is sometimes injudicious to give names, but some indication of status in life can be supplied.

True to their apparent intention of avoiding technicality in dealing with the military aspect of aviation, the authors treat the question of organisation in a light and popular manner. They realise its great importance in the formation of an army. They say "that a fleet of aeroplanes should be divided up into separate aviation squadrons, each complete in itself, and that these depôts should be attached to the various Army Corps. Thus each squadron would act with its own Army Corps, performing its scouting and other work, and moving from place to place with the Corps." Military phraseology is a pitfall for the unwary, but there are many soldiers who would be willing to advise. A squadron is not a depôt. Again, in a work ostensibly written to urge on the Government the need of increasing their aerial fleet, it is surprising to find that it is even suggested that one squadron should be attached to one army corps. The squadron is the tactical unit of an aviation corps, as it is in cavalry. An army corps consists, broadly, of six divisions of infantry and one of cavalry, with artillery and details attached. Our Expeditionary Force is only one army corps. One would imagine it to be better policy to attach a squadron of aeroplanes to each divisional command.

It is suggested that an officer should be placed in command of the aviation section of each army corps, perhaps with the title of "Commander of Aeroplanes," and that he "should be constantly in touch with the officer in charge of the whole Army Corps. When military operations reach a stage that demands a rapid aerial reconnaissance this officer in charge of aeroplanes will be called into conference and told exactly what is required. He, in his turn, will indicate how his airmen can go to work; and he will then transmit orders to the pilots and observers, and also summarise their reports for the benefit of headquarters after a reconnaissance has been carried out." This sort of thing will probably happen in the United States Army; but the European system of organisation does not allow of it. A general officer of the future will know the limitations of his aerial force quite as completely as those of his cavalry or his guns. And the need for a "conference" with the officer commanding aeroplanes will be infrequent. It is the duty of the Staff to summarise reports, and not that of commanders of units. On the diffuseness of a report may depend vital happenings. Such reports at least echo the state of the scout's mind, and are an index to the value of the different statements made. Those who organise on paper are lamentably apt to ignore the human factor. An army is not entirely mechanical in action. If it were, war would be indeed a game.

The section dealing with the present state of military aviation in England is excellent. The need for further expenditure could not be more clearly or concisely stated. There is no trace of the "expert" prejudice so frequently found in the discussion of such subjects. Mr. Grahame-White has always been of one mind as to the urgency of forming and equipping a large and efficient flying corps. One may differ from him as to detail and as to the methods adopted, but one can only express admiration of his general attitude.

There is a not unnatural tendency throughout the book to exaggerate the importance of the aeroplane and the narrow field of action of the land scout. And on paper it would seem that they were right. In practice, however, things will be different. The information gained by the different methods of land scouting is surprisingly extensive and valuable. And both combatants are working under similar conditions. If two armies were operating over the type of ground existent in the mind of the paper critic—flat ground over which any movement can be made without the enemy seeing it—then, indeed, would the general officer commanding be in a curious mental state. But in actuality movements are largely controlled by the contour and natural features of the land, and are therefore to some extent obvious. One frequently knows the things an opponent cannot do, which is some indication of what he will do. The aeroplane can make matters clearer and more definite, but they cannot make war mechanical or precise. The possession of aeroplanes does not give one the victory. It will help, that is all. One does not yet know how far it will be possible to reconnoitre over the enemy's lines in the presence of a hostile force of aeroplanes, or of what value the observations thus made under adverse conditions would be to the general officer commanding. Any reconnaissance of the enemy's position made from a point above one's own lines would be of little greater value than if made from a captive balloon or kite. It should be realised by those to whom aviation is the bread of life that in war the arrival of the aeroplane marks a stage in advance and not a revolution.

Some interesting details are given as to the use of "wireless" on aircraft, with various comments on the slackness of the British Government in this direction. Perhaps we have been more successful in our experiments than the authors are aware. The perfecting of some science important to the art of war as studied in our own Services is not celebrated by glowing articles in the *Times* or the *Daily Mail*. The birth of a new idea is not publicly announced. The War Office and the Admiralty have that wholesome respect for the principles of secrecy common to our friends the enemy. Inspired statements appearing in the public prints serve their purpose and mislead the guileless. There are some who think that the plans for the latest submarine should appear in the *Yachting Monthly*, and that our Naval Signal Code should be made the subject of a coloured supplement to *The Boy's Own Paper*.

"The Aeroplane in War" can be recommended to all who wish to read a clearly-written book on aviation in general. It is remarkably free from errors—more so than the great majority of aviation treatises—and reflects great credit on the authors.

The Inauguration of the Central Flying School.

Thursday marked the advent of the first aeroplane at the Central Flying School at Upavon, Wilts. Captain Fulton, R.F.A., flew the first machine to arrive at the school from Farnborough in a 20 m.p.h. wind. The machine, a 50 h.p. Avro biplane, behaved splendidly, the distance of 50 miles being covered in 1¼ hours, or about 60 m.p.h., allowing for the 20 m.p.h. head wind. He landed at 4.30 a.m.

Captain Gerrard, R.M.L.I., also started from Farnborough on a new 70 h.p. Short biplane, a two-seater, side-by-side type; but, owing to plug trouble, he was forced down at Oakley. Misfiring commenced about ten minutes after he started, yet he kept on for almost an hour, in a high wind, until eventually compelled to alight. After having new plugs put in, he got away from Oakley in the evening, and landed at the school at about 7.30 p.m. The wind was very strong when he landed, and for lack of good landing ground he came down on some soft land. Fortunately nothing was broken.

French Military Aviation.

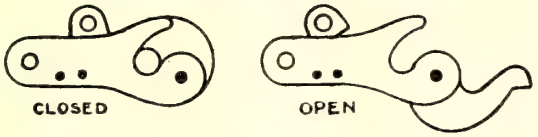
Lieutenant-Aviator Cheutin, with Sapper Courrejou as passenger, flew on a Maurice Farman biplane from Saint Cyr to Mailly. The flight was made in two hours at an average speed of 120 kilometres an hour and at a height of 2,000 metres.

Fifty-one French officers have been selected for service with the aviation corps. The number is made up as follows:—Infantry: 4 captains (one for dirigible service), 26 lieutenants. Cavalry: 6 lieutenants (one for dirigibles). Artillery: 2 captains, 8 lieutenants. Colonial infantry: 5 captains. Comparisons are odious, perhaps; but one cannot refrain from a momentary reflection on the way it is done in England. Most reflections are sad!

Lieutenant-Aviator Peignan, who was killed at Douai in an aeroplane collision last week, was buried on June 24th, at Brest. A large number of people paid the last honours to the gallant dead.

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ground at Bar le Duc by M. Poincaré, seven aviators came by way of the air. On June 27th Lieutenant-Aviator Gaubert, on a Blériot, and Lieutenant-Aviator Vigne and observer, on a Farman, arrived. The next morning Lieutenant-Aviators Chemtin and Batini, with passengers, arrived from the Camp de Mailly on Maurice Farman biplanes. Captain-Aviator Leclerc flew from Villacoublay on a Maurice Farman in three hours. Later arrivals were Lieutenant-Aviators Pierra and Ménard, both on Farmans. The hangars and ground at Bar le Duc have been provided by public subscription.—W. E. de B. W.

German Military Aviation.

It is announced by the Ministry of War that the military aeroplane competition which was to have taken place shortly is postponed until the end of the autumn. At the same time the Ministry of Marine has authorised the postponement of the naval hydro-aeroplane competition at Swinemunde until September, in order to give the manufacturers more time to produce machines.—W. E. de B. W.

Italian Military Aviation.

A telegraphic despatch from Tripoli, received in Rome on Sunday, states that on Saturday last Signor Sacurdote, while making an aerial reconnaissance of the Turkish position in the vicinity of Bu Hamesh, was forced by engine trouble to land some distance outside the Italian lines. He made his way on foot, as rapidly as he was able, towards the most advanced Italian entrenchment. Troops were sent out, and the aeroplane was recovered, absolutely undamaged.—W. E. de B. W.

Spanish Military Aviation.

According to unkind rumour, the Spaniard is not designed by nature for the execution of "daring deeds" in the air. He is not an apt pupil, and the conquest of the air makes no appeal to him. Of exceptional bravery under other conditions, his courage fails him in an aeroplane. Such inaptitude or indecision frequently leads to disaster. The Spanish military aviation section has only been formed a few weeks, and it is therefore doubly regrettable to have to announce the death of one of the pupil officers. Captain Celestino Bayo was killed on June 29th while flying a Farman biplane at the Madrid Military Aviation School. Such reports as one has state that the unfortunate officer fell a distance of 40 ft. only, but give no details of the accident.—W. E. de B. W.

Turkish Military Aviation.

The troubles of Turkey are proverbial. The Turkish method of government and their presumed knowledge of countless scientific ways of producing painful death for unwary Christians have not endeared them to a jealous world. Even the formation of an aviation corps has given them trouble. Unkind neighbours seized the aeroplanes they purchased at high price, and only expensive subterfuge availed to procure them machines at all. Having acquired aeroplanes, they were without pilots. The promise of high emoluments failed to counterbalance the fear of reputed strange habits of the Turks, and so, until recently, the aviation corps languished. It is now announced that two German officer-aviators, Lieutenants Rentzel and Jahnow, have, attracted by the promise of largesse, promised to train a corps of Turkish aviators. The latter is to be gazetted to the Turkish forces. Several German aeroplanes have been sold to the Ottoman Government.—W. E. de B. W.

Continental Notes.

MM. Paulhan and Barra are at present flying Paulhan-Curtiss hydro-aeroplanes on the Meuse at Liége. M. Barra has particularly impressed those who watched by the excellence of his flying. It will be remembered that he flew a Maurice Farman biplane through the European Circuit, though the inefficiency of his six-cylinder motor prevented his flying at a greater height than 200 ft. From Dover to Hendon his average altitude was 50 ft., which in England is unhealthy.

On June 27th Védrines left Limoux for Paris at 4.40 a.m. on his Deperdussin. He arrived at Toulouse at 5.40 a.m. After a rest he restarted, and landed at Agen at 8 a.m. He left in the evening for Libourne. While landing at the latter place, a back-fire set his aeroplane on fire. He escaped uninjured, but his machine was burnt out.

On the same day M. Bobba, on a 70 h.p. Gnôme-Clement-Bayard, made a flight from Issy-les-Moulineaux, lasting two hours and forty minutes, mostly at a height of 1,000 metres.

Busson also made a cross-country flight on June 27th. He used a Deperdussin monoplane. He left Issy-les-Moulineaux at 5.5 a.m., and landed on the Aerodrome de la Champagne at Reims at 6.20 a.m.

Mlle. Hélène Dutrieu has made several flights over the lake at Enghien on a Henry Farman hydro-aeroplane. She prefers it infinitely to flying over the unyielding earth.

M. Olivérès, on a Sommer biplane (Renault motor) flew from Mourmelôn to Meaux on June 29th. He had intended to fly direct to Paris, but, as the wind increased unpleasantly, he was forced to land as stated. He continued his journey the next evening, and landed at Issy-les-Moulineaux at 7.45 p.m. He had as passenger Sapper-Aviator Gilbert.

Lieutenant de Vaisseau de Conneau received from M. Deutsch de la Meurthe, on June 29th, the Grand Prix of the Academy of Sports. The ceremony took place during the afternoon at the Chateau de Romainville. A great number of the best-known people in Paris were present, and the presentation was made the occasion of a very pretty fête.

A New Short Hydro-aeroplane.

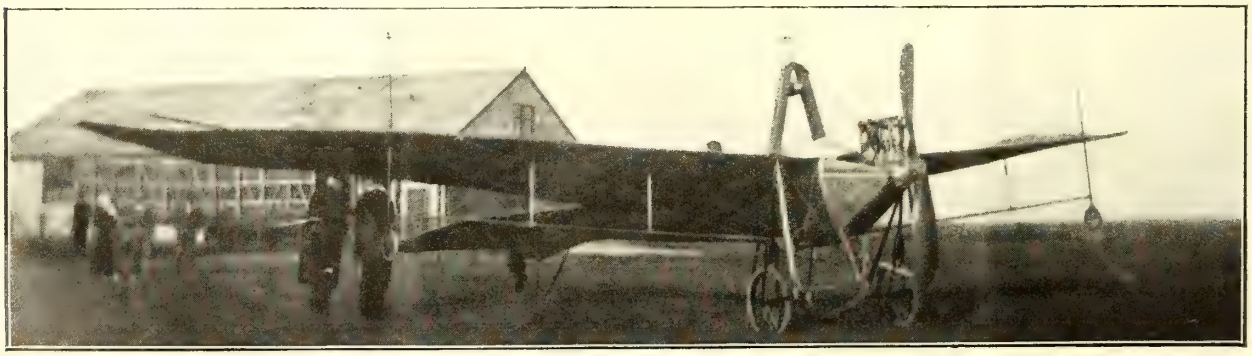
A new hydro-aeroplane, officially known as *S.43.*, has been delivered to the Naval Wing of the Royal Flying Corps at Eastchurch by the Short Brothers. Commander C. R. Samson, R.N., commanding the Naval Wing, in a test flight over Sheerness Harbour, with a passenger, made a speed of 62 miles per hour in a high wind. The machine is fitted with a wireless installation, and carries sufficient petrol and oil for a six hours' flight. The new hydro-aeroplane will take part in the naval manœuvres in August.

The Death of Miss Quimby.

It is reported from America that Miss Harriet Quimby, the woman who flew the Channel recently, was killed while flying at Squantum, Mass., on Monday, the accounts available saying that she fell from 1,000 feet. Apart from the fact that the report may be entirely inaccurate, coming from America, and that the aviatrice may still be alive, it is unfortunately necessary to say that some such result has been expected for some time, as may have been gathered from the remarks of a British pilot published when she flew the Channel. Her death is greatly to be regretted, but it only serves to emphasise the fact that flying is not a woman's game, for the number of women killed or injured is altogether out of proportion to the number of women pilots.

Everybody's Doing It.

Mr. Walter Lawrence, who has been appointed to the Royal Flying Corps, has followed the example of other well-known aviators and become engaged. The lady of his choice is Miss Doris Hart-Davis, the youngest daughter of Mr. and Mrs. Hart-Davis, of Chester.



The Etrich monoplane recently delivered at Eastchurch to the Royal Flying Corps (Naval Wing).

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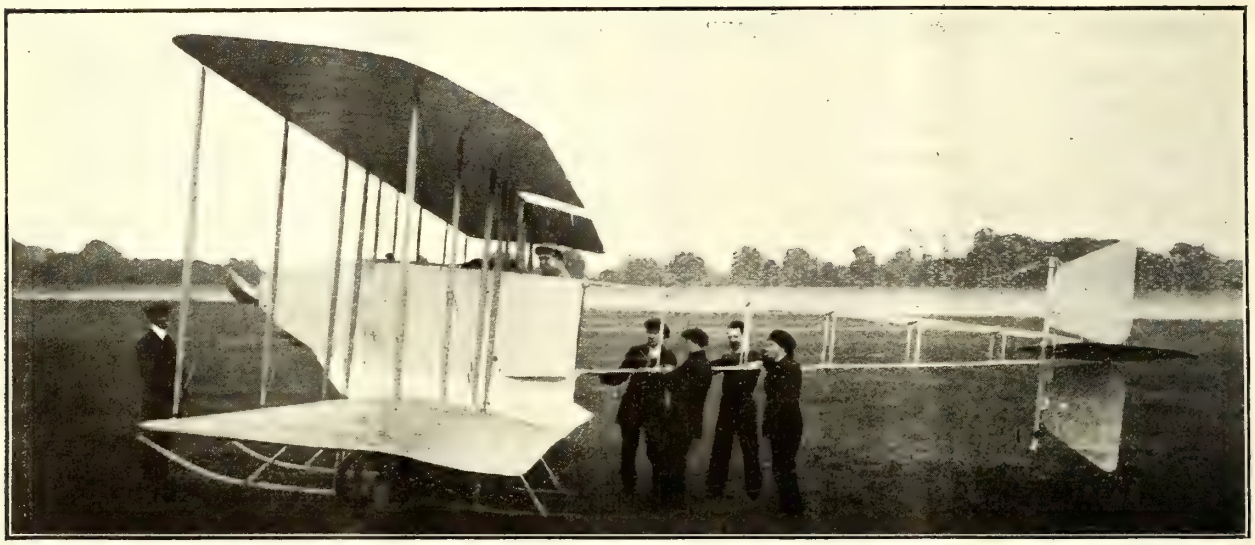
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The Success of the Sopwith Biplane.



Mr. T. O. M. Sopwith in his new biplane, Mr. Sigrist in front, and the Sopwith School crew behind.

It is always a pleasure to be able to chronicle the immediate success of a sporting effort, and as such every congratulation is due to Mr. T. O. M. Sopwith and his chief engineer, Mr. Sigrist, on the success of the first Sopwith biplane, which made its first flight at Brooklands on Saturday last.

The machine is a biplane of the popular tractor-screw type, and has many points of interest. The planes are of the exact Wright camber and form, though they differ somewhat in construction and method of fixing the struts. The elevator is a warping plane of the same type as that used in the Wright machines, and has a small rudder above and below it. The fuselage is very deep and is built to carry two passengers in front of the pilot over the centre of pressure. The chassis is also of the Wright pattern, and at present has four wheels fitted on the Farman system, but it is intended to replace these later with floats.

Mr. Sopwith brought the machine out on Saturday evening, and at the very first attempt he got off the ground at a very low speed, with the throttle of the 70-h.p. Gnôme only a quarter open, though the machine was fitted with a propeller intended for a 70-h.p. Blériot, and, therefore, obviously of too big a pitch for this particular machine. After several straight flights, Mr. Sopwith took up two of his mechanics as passengers, and the machine lifted the three as easily as it had lifted one before, merely taking a little more power to do it. Afterwards Mr. Sopwith did several circuits, in which it appeared to handle and bank as easily as the well-known Burgess-Wright, so that it may be reckoned a complete success from the start.

The only likely alteration is the need, possibly, for larger rudders. It is really quite wonderful that time should be found to build this and another machine, which is under construction, considering the amount of work that the Sopwith School puts in. There are somewhere about a dozen pupils at work, all of whom have received the closest attention from Mr. Raynham, and the school machines are always kept in the most perfect condition by Mr. Sigrist, the result being that practically all the pupils are at the present moment nearly ready to take their certificates.

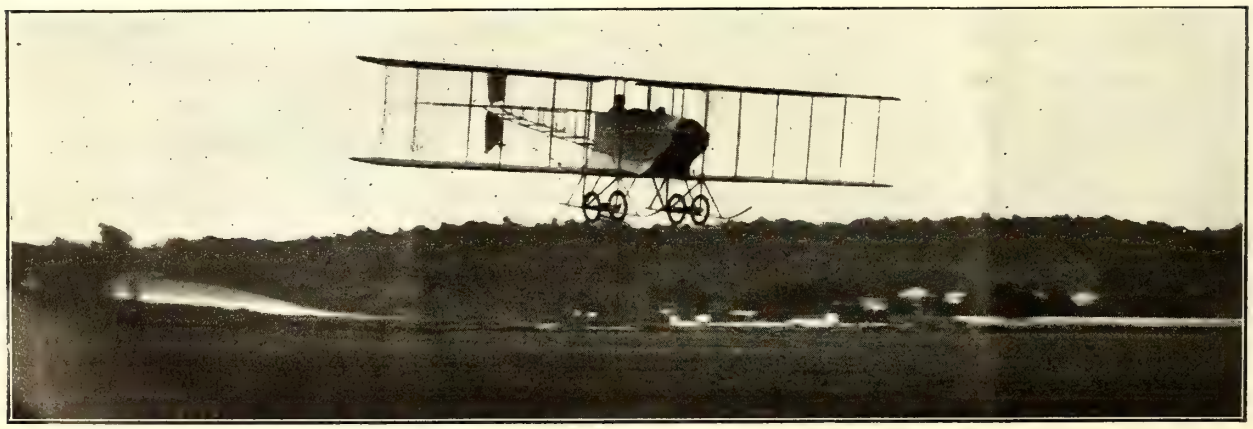
Concerning A.B.C. Progress.

Excellent progress is being made with the A.B.C. engines at Brooklands, and the success of the 40-h.p. 4-cylinder on Mr. Sopwith's Burgess-Wright augurs well for the future of the other engines. The second of these 40-h.p. engines is now under test, as well as an 8-cylinder of somewhat similar type, while the first of the new 8-cylinder engines with the cylindrical crank case is just being assembled.

It is worthy of note that all these engines have been designed throughout by Mr. Charteris and his chief engineer, Mr. Granville Bradshaw, and that there is not in any of them any relic of the design of the original A.B.C. engines which were designed at Bournemouth, practically every dimension in the engines having been altered as well as the general design.

An Apology.

The printer of The Aeroplane tenders his apologies to Mr. Dashwood Lang, and offers him the head of the erring linotype operator as recompense for printing as "French claim" the beautiful phrase "French calm" invented by Mr. Lang to express that particular form of chaotic excitement which has been known to prevail even at British aerodromes under the stress of preparations for a big event.



Mr. Sopwith, with two passengers on board, coming down on his new biplane.

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BOOKS TO READ.

Stability in Aviation. By G. H. Bryan, Sc.D., F.R.S. Price, 5s. net.

Artificial and Natural Flight. By Sir Hiram S. Maxim. Price, 5s.

Monoplanes and Biplanes. By Grover Cleveland Loening, B.Sc., A.M. Price, 12s. 6d.

Aerial Navigation. By Frederick Walker, C.E. Price, 5s.

All About Airships. By Ralph Simmonds. Price, 6s.

Aerial Navigation of To-day. By Charles C. Turner. Price, 5s.

The Conquest of the Air. By Alphonse Berget. Price, 6s.

Flying—The Why and Wherefore. By "Aero-Amateur." Price, 1s. net.

Model Flying Machines (The Design and Construction). By W. G. Aston. Price, 1s. net.

All the World's Aircraft. By F. T. Jane. Price, 21s.

My Three Big Flights. By Lieut. de Conneau. Price, 10s.

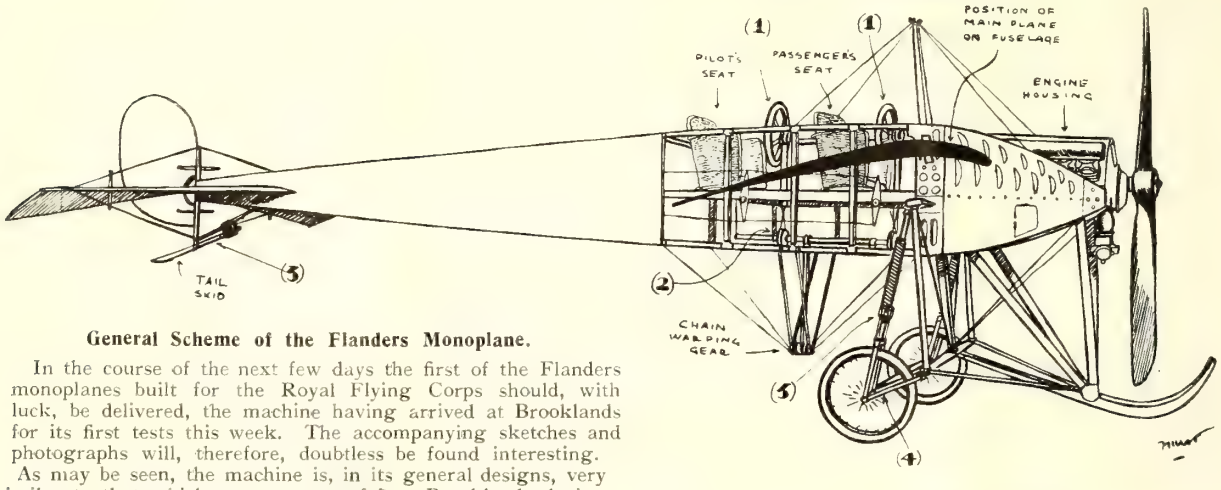
The Mechanics of the Aeroplane. By Captain Duchêne. Price, 7s. 6d.

The Art of Aviation. By R. W. A. Brewer. Price, 10s. 6d.

The Helicopter Flying Machine. By J. Robertson Porter, A.M.Inst.C.E. Price, 3s. 6d. net.

Obtainable from "The Aeroplane," 166, Piccadilly.

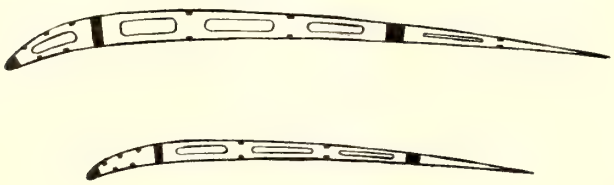
The New Flanders Machines.



General Scheme of the Flanders Monoplane.

In the course of the next few days the first of the Flanders monoplanes built for the Royal Flying Corps should, with luck, be delivered, the machine having arrived at Brooklands for its first tests this week. The accompanying sketches and photographs will, therefore, doubtless be found interesting.

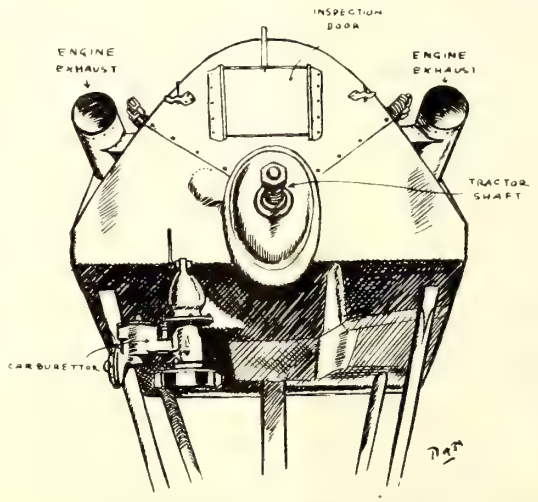
As may be seen, the machine is, in its general designs, very similar to that which was so successful at Brooklands during the past summer, the chief difference being that it is fitted with an 80-h.p. Renault engine, which has a geared-down propeller, and that the whole machine is a trifle lighter.



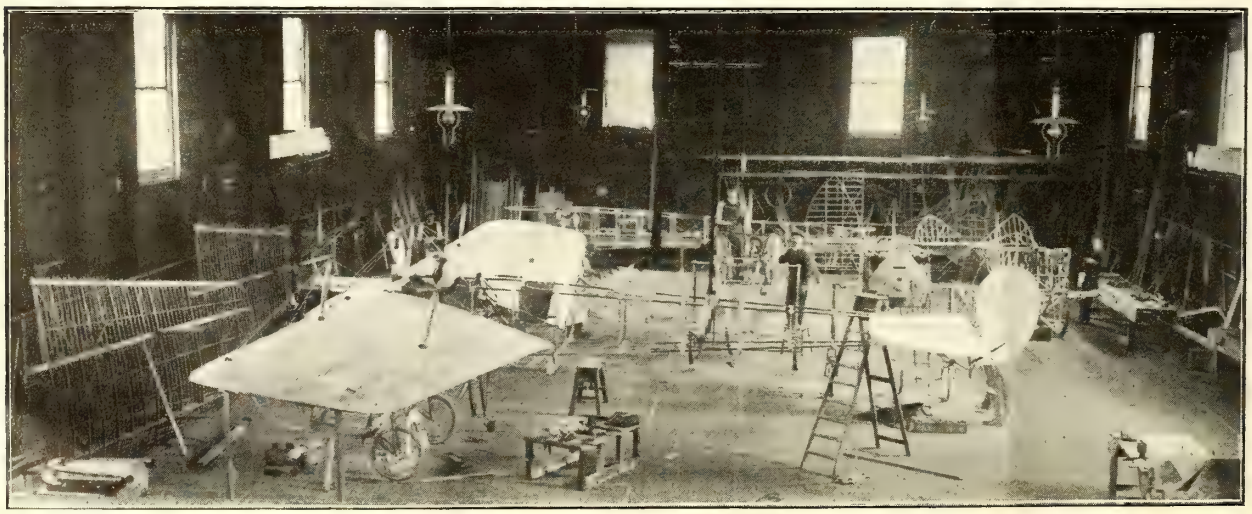
Ribs from butt and tip of wings.

The testing of the machines will be in the hands of Mr. F. R. Raynham, who has for some time been acting as school pilot for Mr. Sopwith, and Mr. Raynham will also have the flying of the Flanders biplane in the military trials. Certainly no better choice could have been made, for Mr. Raynham is one of the steadiest, and at the same time one of the cleverest, pilots in this country.

The photograph also gives a good idea of the activities now in progress at the Flanders works. At the time the photograph was taken, as may be seen, one monoplane was practically finished, another one had already had the chassis fitted, and the fuselages of the third and fourth were well under way, while on the extreme right may be seen the fuselage of the biplane for the military trials. Should the Flanders monoplanes behave as there is every reason to expect them to do, one may confidently expect to see quite a number of others of the same make put in hand at an early date, not only for the British but for foreign Governments.

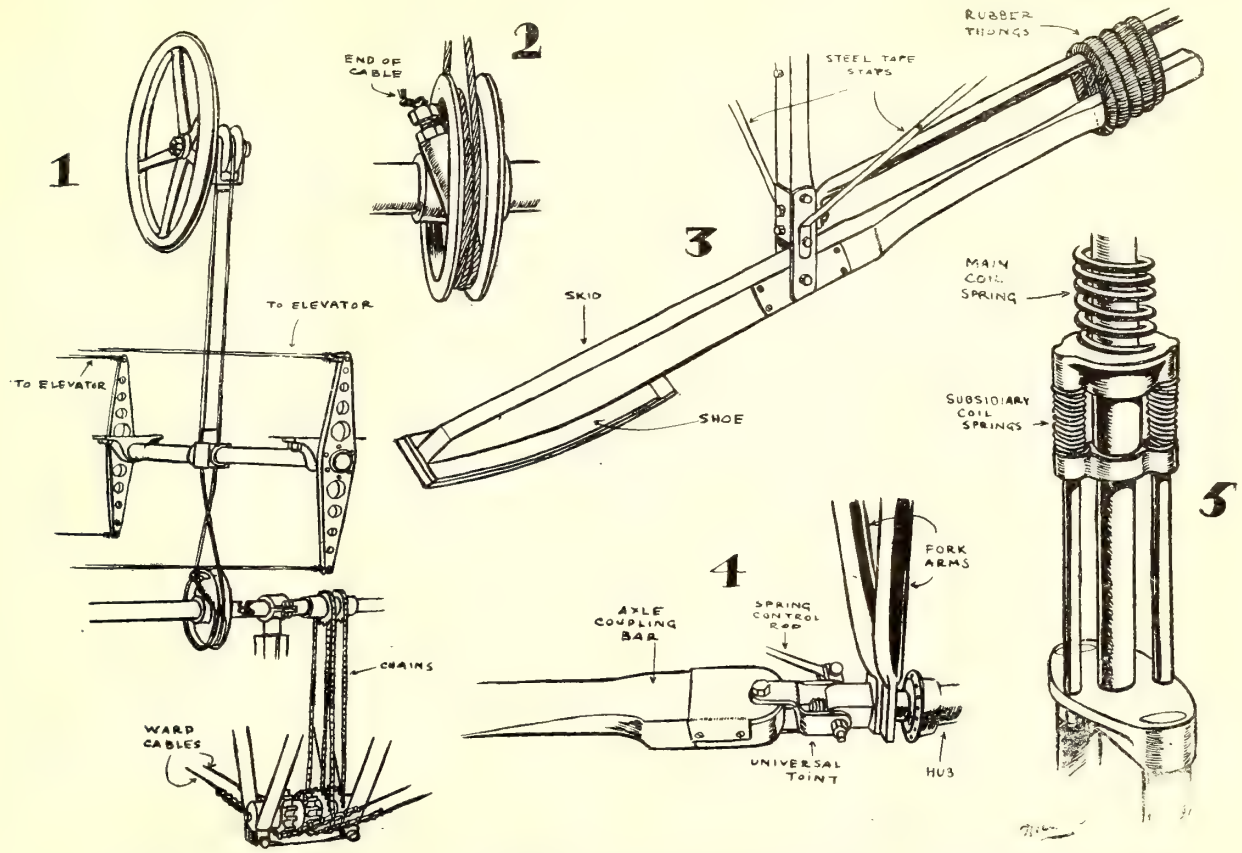


Bow view of the Flanders-Renault.



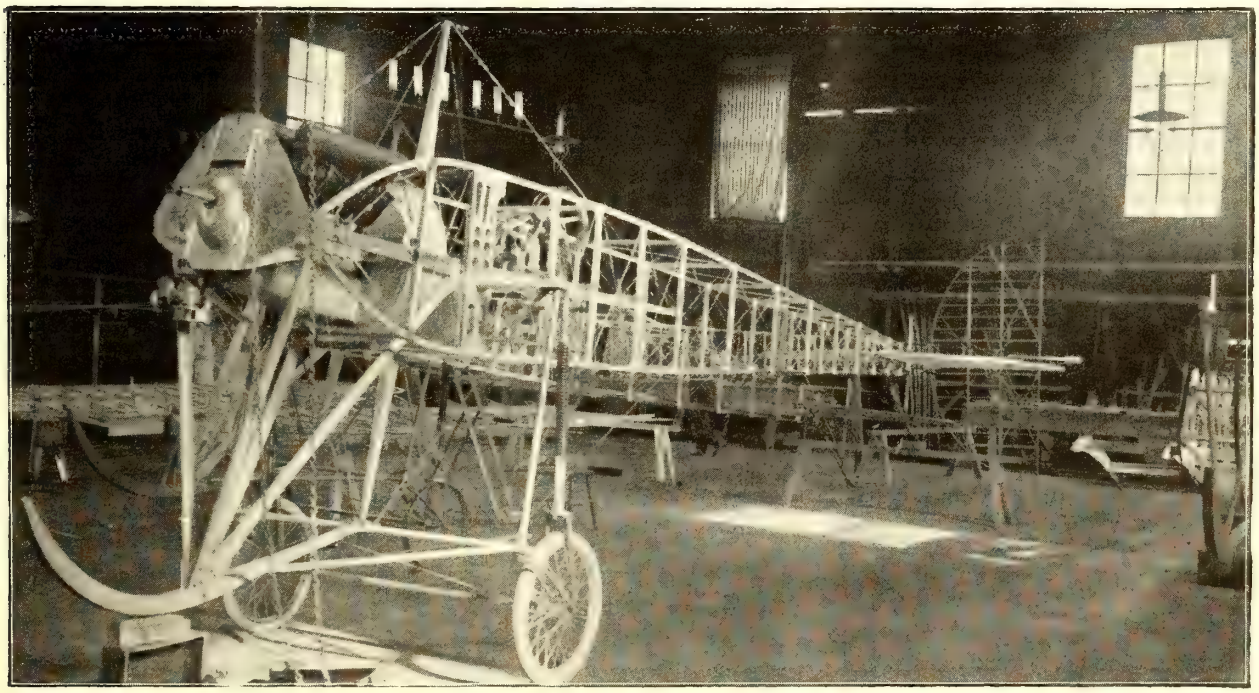
Photograph by J. Dannatt.

The Flanders erecting shop, in which may be seen a monoplane almost complete, and the fuselage of three others, and of a tractor biplane.



(1) Control gear; (2) cable joint; (3) skid arrangement; (4) tracking bar of chassis; (5) spring forks of landing wheels.

In details of construction several alterations have been made in the new Flanders machines. Duplicated steel ribbons are used, not only for the main wing stays from the butt of the main kingpost to the chassis, but also from the wing tips to the end of each kingpost. Ribbons are also used for the main warp, and they are connected by stout chains running over large duralumin cog-wheels carried in a steel tube *cabane*, which looks stout enough to act as a chassis strut. The Renault engine is housed in a particularly neat way, and the passenger is placed so close to the engine that he must be able to see clear over the top of it. It is worthy of note that the first machine, at any rate, is fitted with a four-blade propeller made on the Bréguet principle of putting one propeller on top of another at right angles.



Skeleton of the new Flanders military monoplane before covering with fabric. *Photograph by J. Dunnatt.*

The Aerial Tourists.



Mr. Ewen and Mr. Warren on the Caudron.

Mr. Ewen Delayed.

Mr. W. H. Ewen, who is now flying his Caudron biplane in a tour arranged by the *Daily Mail*, had a slight accident at Peterborough on July 1st. He was rising from a field at that place with the intention of flying to Lincoln, when he was brought close to some trees owing to the gusty wind. His landing was a little heavy, and he smashed his propeller and both skids, but otherwise doing very little damage. Neither Mr. Ewen nor his mechanic Warren, who was with him as passenger, was injured at all.

M. Salmet's Illness.

Everyone will much regret to hear of the illness of M. Salmet, who has been flying so well in the West of England recently. M. Salmet was taken ill at Cardiff last week and was compelled to return suddenly to his home at Hendon, where it was found that an operation for appendicitis was necessary. It is, however, hoped that he may be able to get about again in a few weeks. All will wish him a quick and complete recovery.

Signor Nardini is to take his place, and preserve the All-Foreign character of the Tour.

The I.C.S. Educational Tour.

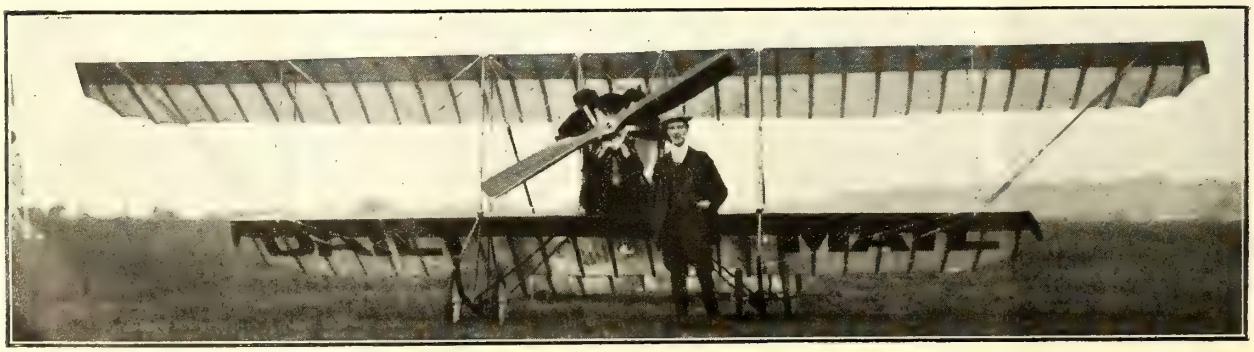
Writing on July 1st, Mr. E. B. Seymour Norton relates Mr. Slack's progress as follows :—

All through the past week the weather had precluded any possibility of a start; if the weather was reasonably fine at Nottingham it was very bad at Birmingham, and two mornings, when Mr. Slack might have started, the fog was so dense that he could not see his way for the preparatory run across the flying ground. On Friday evening, 28th ult., the weather improved, and Mr. Slack started at about 7 p.m., but he had Gnôme troubles and came down in a hay-field at Ravenstone, four miles south-east of Ashby-de-la-Zouche and between that place and Coalville. The motor had not been working at all well and Mr. Slack found no fewer than four plugs out of order. To add to the difficulties, the chain of the big Austin car had broken, and this car was stranded somewhere in the neighbourhood of Burton-on-Trent. Mr. O. F. Odell, Secretary of the I.C.S., got through from Birmingham to Ashby-de-la-Zouche about 11 p.m., and found that the local police had rendered every assistance possible to Mr. Slack and that the local squire had offered the aviator his hospitality and had given him a jolly good dinner. Although it was so late at night, and in such an isolated place, a large number of people had already gathered round the aeroplane, which was pegged down for the night in the field where it had alighted.

At daybreak next morning there were hundreds of miners gathered round the machine.

The farmer on whose hayfield the machine had alighted made great objections to the persons on the ground, and, although the machine had alighted on a bridle path, grave doubt was felt as to the legality of an aeroplane using a public thoroughfare, so the services of a score of willing helpers were requisitioned and the aeroplane was lifted bodily over the hedge in style, trundled along the lane, and into a second field.

Heavy thunder-storms drenched everyone, but at 12 o'clock it suddenly cleared, and Mr. Slack immediately started for Birmingham; but, fifteen minutes after he started, when he was passing over Atherstone, he ran into an appalling thunder-storm which forced him to descend a second time over Arley, which is six miles west of Nuneaton and fourteen miles east of Birmingham. Here he created a great sensation amongst the colliers. Meanwhile the cars, which had been proceeding to Birmingham through the thunder-storm, had got to the alighting ground near Castle Bromwich, and, finding no one there, telephoned in all directions for news of Slack. When they learnt of his descent, they moved off to Arley and had terrible experiences traversing the miry Warwickshire lanes; the wheels of one car had to be dug out of the slough with spades. The cars got to Arley about 3 o'clock, and, everything being put in order, Mr. Slack started to complete the nine miles to his alighting ground about 4 o'clock.



Mr. W. H. Ewen and the Anzani Caudron on which he is touring the Eastern and Northern Counties.

As ill-luck would have it, he had only been in the air four or five minutes when the worst thunder-storm of the day broke out; the electricity in the air jammed his compass so that he could not tell in which direction he was steering, and the rain driving directly in his face prevented him seeing exactly where he was. To his disgust, Mr. Slack found himself in the thick of the storm over Saltley and the eastern part of the City of Birmingham, but all he could do was to battle through the weather and try to retrace his course. After about half an hour fighting with the elements, he made out the alighting ground at Castle Bromwich, identifying it by the long strips of white canvas that had been stretched on the ground. He alighted in splendid style at 4.25 p.m. on Saturday afternoon. The only damage sustained by the machine in the course of its remarkable experiences was a strained tail-skid. This skid is of ash and of quite a new pattern. It was not broken, but it was twisted and the springs strained. No other damage has been incurred and Mr. Slack is in the best condition. As soon as things have been put right he will be proceeding to Manchester.

The Avro in Its Own Country.

For the first time an Avro biplane has been flown in the district in which it has been produced.

Lieutenant Parke, R.N., and Mr. Wingfield-Smith motored up to Manchester, arriving on Thursday at midnight, travelling the 250 miles in their Ford car in 12 hours, taking it in turn to drive and sleep. Soon after their arrival they visited the various possible grounds, finally selecting the Eccles Cricket Ground, and the aeroplane was immediately taken there, the wings on a lorry and the body dragging behind. The Avro biplane (50 h.p. Gnôme, for the War Office) was erected, and covered with tarpaulins for the night.

On Saturday afternoon the first flight was made by Lieutenant Parke. A dash across the cricket ground, and he cleared the telegraph wires at the end by 30 ft. or so. After that he flew in various directions over Eccles, Old Trafford, Chorlton, etc., at 1,000 ft. Owing to the cricket ground being rather cramped, and there being a very large crowd, he landed, after 23 minutes, in a neighbouring field in Trafford Park, where the Avro was pegged out for the night.

On Sunday, after church time, he took the machine for a little spin in the vicinity of the field, at about 500 ft., for 10 minutes or so, and landed in a nasty puffy side wind. This, by the way, was a pretty bad field really, but the chassis stood up to it without any trouble

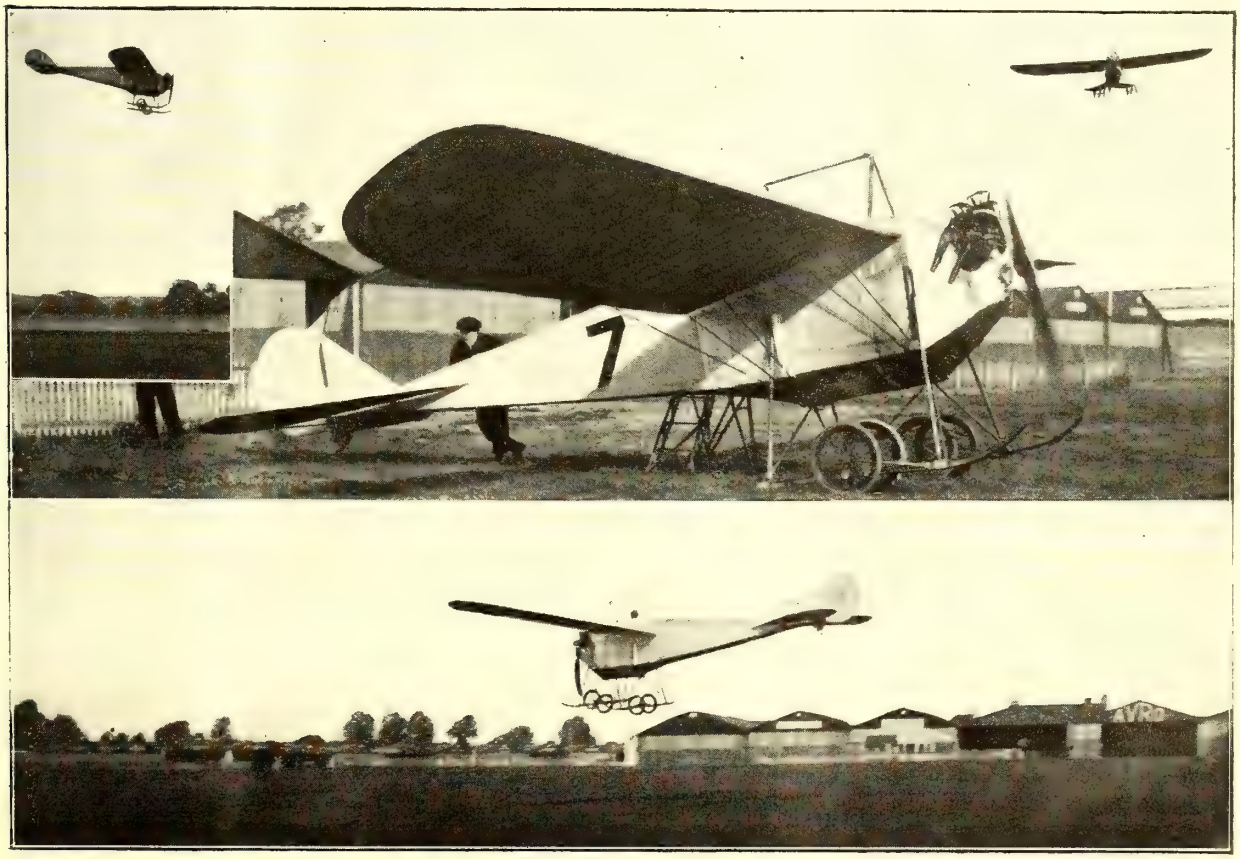
In the afternoon, about 3, he had the machine out again, this time going further afield. He got to a little over 1,000 ft., circling the field for the benefit of the crowd which soon collected, then he made off over the Manchester Docks. Picking his way carefully, so as to be near landing ground all the time, he made for the Manchester Racecourse, but soon afterwards found himself in a mist. However, he continued his way until he observed the Manchester Athletic Ground at Fallowfield, where he came down. Unfortunately, the ground was more obstructed than appeared from above, and in avoiding the obstacles he ran into the fence round the track, which broke the propeller, which will delay the machine's big flight for a day or two.

It is intended to fly direct, without a stop, from Manchester to Farnborough, to show the advance machines have made since the London-Manchester flight of two years ago.

Aviation in Ireland.

Rapid strides have not so far been made in Ireland. Messrs. Corbett Wilson, Fergusson, and Hewitt are the only aviators who have accomplished any practical flying in the country, although the Leopardstown Aviation Meet was a financial success. However, interest in flying and building of aeroplanes may now be seriously considered, seeing that Mr. M. Granville Loder has taken up the agency for the Blackburn products. Mr. Loder intends shortly to open a school, and will also endeavour to make a tour of Ireland, visiting the chief cities and giving free exhibition flights for the purpose of arousing interest in the sport. This tour will be similar to the one carried out by Mr B. C. Hucks on the Blackburn monoplane in the West of England last year.

Land has been secured at Baldoyle for the flying ground, and it is proposed to use two Blackburn monoplanes, one single-seater with a 50-h.p. engine, and one double-seater Blackburn Mercury type, fitted with a 60-80-h.p. Green motor. The Blackburn is too well-known to require description. The two-seater will be used on the tour.



"Vickers, V.," photographed in various attitudes by Captain Darbyshire.

The Week-end at Hendon.

The weather has not been kind to the Hendon Aerodrome. Each meeting seems to bring the wind, though, as a matter of fact, the flying is finer than would be the case in a calm. Saturday was distinctly unpromising in the morning—rain was imminent and the wind was high. The afternoon, by way of contrast, was sunny and clear, though the wind did not drop. Both races were run off, and both fell to Mr. B. C. Hucks on his 70-h.p. Blériot, which flew splendidly.

The first race was a cross-country handicap—two journeys to Elstree Reservoir and back—a distance of sixteen miles. Mr. Hucks was at scratch, giving starts to M. Verrier (Maurice Farman biplane) and Mr. Hamel (50-h.p. Blériot monoplane). M. Verrier, who started first, was not overhauled by Mr. Hucks, who passed Mr. Hamel early in the second lap, until the last mile of the race. The times were :—Hucks, 22 min. 33 sec. ; Verrier, 23 min. 3 sec. ; Hamel, 24 min. 35 1-5 sec.

The second race, a six miles handicap round the pylons, was also won by Mr. Hucks, who gave 1 min. 3 sec. to M. Verrier and 3 min. 23 sec. to Mr. Lewis Turner (50-h.p. Howard Wright biplane). The finishing times were :—Hucks, 10 min. 27 sec. ; Verrier, 10 min. 28 4-5 sec. ; Turner, 11 min. 19 3-5 sec.

Early in the afternoon Mr. Marcel Desoutter made a short flight on the 35-h.p. Anzani Blériot ; but, finding the wind strong, relinquished the attempt after a single straight.

After the conclusion of the racing, several machines were in the air, Mr. Hucks taking up passenger after passenger. Mr. Hamel took up Miss Trehawke Davis on the 70-h.p. Blériot, and made a fine spectacular flight, heavily banked diving turns alternating with spells of fast grass-cutting. The spirit of Simon and Garros appears to animate the present flying of Mr. Hamel. He has never before flown as he has done during the last week.



Mr. Hucks flying the new Blériot 70-h.p. at Hendon on Sunday.

Later in the evening Mrs. Astley ascended with him to a height of about 2,000 ft., where they remained for about twenty minutes, finally descending in a steep spiral *vol plané*.

Mr. Sabelli made a fine flight on the 35-h.p. Deperdussin monoplane during the evening. It is surprising how Mr. Sabelli continually gets such long flights out of this little engine, and his handling of the machine is always excellent.

M. Verrier, on the Maurice Farman, took up several passengers, but finished flying for the day at about seven o'clock, owing to engine trouble.

The exhibition flying on Sunday was opened by a flight of nearly an hour by Mr. Sabelli on the 35 h.p. Deperdussin monoplane at a height of between 500 and 1,000 ft. While he was up, Mr. Hucks gave a passenger flight on the 70 h.p. Blériot over the surrounding country, unfortunately breaking some stay wires in the chassis on landing. Mr. Lewis Turner and Mr. Gates in turn made circuits on the Howard Wright biplane. Mr. Hucks, tired of waiting, started away on the Nieuport. Before he rose, however, the machine gracefully gyrated on the right wing tip with sufficient force to do quite a lot of damage. None was visible, but no flight was made, owing to the possibility of the wing being injured internally.

About 3.30 p.m. Mr. Crawshay on his 50 h.p. Blériot arrived from a long cross-country trip, having been to lunch with some friends in the country 60 miles away. Mr. Crawshay was using one of those quaint-looking but evidently effective Cyrnos propellers which are being run in this country by Signor Nardini.

Mr. Hamel made several very fine flights on a single-seater Blériot, jumping pylons and making ferocious turns over and in front of a nervous but excited crowd. While he was still in the air Mr. Hucks rose on the 70 h.p. Blériot and flew in friendly rivalry. Both pilots seem to have a great liking for "grass-cutting" and switchbacking, which certainly enables the crowd to realise the speed of an aeroplane.

At about 7 p.m. Mr. Travers arrived on the Grahame-White biplane from Chingford, flying at about 400 ft. Before landing, he made several circuits of the ground, banking beautifully at the corners. After the machine landed, both Mr. Roupell and Mr. Gates made several circuits on it, the latter being brought down by engine trouble.

During the evening Mr. Hucks took up eight passengers consecutively in the 70 h.p. Blériot, three of them being women.

Mrs. de Beauvoir Stocks made a 10-mins. flight on the 35-h.p. Anzani-engined Blériot monoplane. Though there was still a little wind, she flew very steadily at a height of about 200 ft. Given an efficient aeroplane, Mrs. Stocks could make a very good showing.

Ladies' Day at Hendon.

The programme for the Ladies' Aviation Meeting on July 6th has now been fixed as follows :—3.30 p.m., Cross-country Passenger-carrying Handicap for men pilots, who must carry a woman passenger. First prize, silver trophy and 25 sovs. ; second prize, trophy and 10 sovs. ; third prize, trophy and 5 sovs. A silver commemorative trophy will also be given to the first two women passengers. 4.15 p.m., Quick Starting Competition, open to women aviators only. First prize, trophy and 20 sovs. ; second prize, trophy and 10 sovs. 5 p.m., Exhibition and passenger flights by lady pilots. A silver trophy will be given to each lady pilot who completes two circuits of the aerodrome, and in addition a very handsome trophy will be presented to the lady pilot who completes two circuits of the aerodrome while carrying a lady passenger. The proprietors of the *Daily Mirror* have also presented a very handsome silver mirror and a purse of 30 sovs. to be presented to the lady aviator who, in the opinion of the Committee, is held to have made the best flights of the day.

6 p.m.—A Grand Speed Handicap to be run in heats of four laps and a final of six laps. First prize, silver trophy and 20 sovs. ; second prize, 10 sovs., ; and 3rd prize, 5 sovs. At the discretion of the stewards of the meeting, lady pilots may take part in this competition. From 6.30 p.m., exhibition and passenger flights will be given by Mr. C. Grahame-White and the competitors.

Some Weird Experiences.

Some very quaint adventures befell Messrs. Lewis Turner and Noel in their attempts to get to Chelmsford for Mr. Grahame-White's wedding on two box-kite biplanes.

Mr. Turner started on Tuesday morning early, and ran into a thick fog. When he emerged from the fog he found

himself with the sun on his right hand, so that he was obviously heading due north. He therefore came down to find out where he was, and found that he had arrived at Kirkcaldy's works at Burnt Mill, near Harlow, nine miles north of Ongar, in Essex.

He got some of the factory hands to start him up; but, the wind having risen, he found himself being blown towards some trees, without room to clear them. He therefore made a sharp turn to get to the only landing ground close by, when, just as he was landing, some people rushed out in the middle of the open space. To avoid damaging any of them, Mr. Turner very pluckily pulled his machine up again, and tried to get over some other trees; but, not having enough power, the elevator of the machine struck one tree about 40 ft. from the ground. The elevator crumpled promptly, and the next thing that hit the tree was the foot bar. Mr. Turner was flung forward, and managed to grip the trunk of the tree and hold on, while the machine, which had caught one of its skids in the branches, proceeded to slide down gently backwards till the tail rested on the ground, leaving Mr. Turner hanging on to the tree. Mr. Turner climbed down at his leisure, and found that, except for the collapsed elevator, the machine was very little hurt. Mechanics from Hendon got it down into its proper position and repaired the elevator, and on Friday Mr. Turner started in half a gale to fly back.

Mr. Noel on Thursday morning started on one of the Grahame-White biplanes to Chelmsford, but, owing to his engine failing, came down at the Alexandra Park. After attempting to put the engine right, he started again, and got out of the park, only to find the engine failing again just as he was flying along a village street outside. The story has it that he had to fly with one tip hanging out into the street, and the other over the roofs of the houses, because, if he had tried to bring the left wing up, the right one would have touched the roofs, and it is said that the only way he got out of the trouble was by finding an opening on the left, so that he was able to do a banked left-hand turn into some fields at the back of the houses. The engine was put right later on, and it was flown back to the aerodrome.

Mr. Grahame-White's Wedding.

Quite one of the prettiest weddings one has yet seen was that of Mr. Claude Grahame-White and Miss Dorothy Taylor at Widford Church on Thursday of the last week. The bride, who looked exceedingly beautiful, was given away by her father, and there was a large assembly of notabilities present.

One of the chief features of the wedding was the arrival of Mr. B. C. Hucks on his Blériot, and M. Verrier, with Miss Christich, on the Maurice Farman. Mr. Grahame-White had flown one of his own biplanes over on Wednesday night, so that the lawn in front of Sir Daniel Gooch's house had quite the aspect of an aerodrome.

Mr. Hucks arrived while the marriage ceremony was in progress, and by a clever piece of timing he started out again from Sir Daniel Gooch's house, and arrived at the church just when the happy pair were coming out. He then flew low down, scattering confetti over all and sundry, afterwards flying back to the house and making a beautiful landing on the lawn.

The reception afterwards was, of course, a very merry function, Mr. Grahame-White being in his most charming mood. After the ceremony the bride and bridegroom left for a yachting tour round the South Coast, which is, one believes, not altogether unconnected with the possibilities of hydro-aeroplanes.

In the evening the directors of the Grahame-White Aviation Company, Ltd., gave a dinner at the Trocadero to the pilots and employees of the firm. Mr. Richard Gates, the able manager of the Aerodrome, was in the chair, having flown back from Chelmsford with M. Verrier in order to be in time, the journey against a head wind taking fifty minutes. Mr. Montague Grahame-White took his brother's place in replying to the toast of the bride and bridegroom. Something over fifty of those connected with the firm were present, and Mr. Cook, the works manager, in a very able speech, seconded by Mr. Messen, the chief of the stores, who was equally happy in his phrases, assured the directors of the enthusiasm and loyalty of the staff.

Everyone will echo the sentiments of the employees of the firm in wishing Mrs. and Mr. Claude Grahame-White long life and happiness.

The Imperial Maritime League.

It is announced that Mr. Claude Grahame-White has now joined the Council of the Imperial Maritime League. The League, as is well known, treats the problem of national defence as one whole—rightly considering that the country's defence, by sea, by land, and by air, must be treated, not by way of water-tight compartments (as is too generally the case), but as all inter-dependent.

It is upon these lines that the League has already approached the Prime Minister, with the support of no fewer than 510 admirals and generals, and over 1,000 other prominent men in the land, for the raising of a great national loan for defence.

More About the Aerated-Water Planes.

The *Evening News* for June 27th gives some further details about the plans for the *Daily Mail's* new and clever advertising scheme, and incidentally introduces one to something new in power plants. A firm known as "The Frank Hucks Waterplane Company, Ltd."—a relation apparently of Mr. B. C. Hucks, and British in name if not in material—has arranged for some hydro-aeroplaning to be done on its behalf by the well-known French pilot Fischer, who won the big prizes at Monaco. The *Evening News* says: "The waterplane to be used is one of Farman design, fitted with a 70 ft. Gnôme engine. The machine, which measures 54 ft. across the planes, is capable of carrying three passengers besides the pilot." If this information is accurate, as surely it must be, coming from such a source, the machine will be worth seeing. An engine 16 ft. larger than the planes will look a trifle odd; but perhaps "54 ft. across the planes" may refer to the chord and not the span, in which case the span would be approximately 330 ft.—quite a useful size to lift four people. But, then, Carmelite House always did do things on a big scale.

Progress in South Africa.

The African Aviation Syndicate, Ltd., is evidently making good progress and doing excellent work; for, writing on June 10th, Captain Guy Livingston says:—

"We are still in the land of the living and going ahead. I think I told you that 'Pat' was designing a machine specially for local conditions, as, although he has done some excellent flights here and thoroughly aroused enthusiasm, the European types of machines are not really suitable, if aviation is to play its part in the future development of this country.

"'Pat' has now designed and made drawings for three types of machines for use in South Africa, and I am convinced that they will be really 'hot stuff.' One type is already in hand, and we are building it with the assistance of the splendid workshops of De Beers Consolidated Mines, Ltd. This means that we have works at our disposal second to none anywhere.

"I am convinced that no constructor could build machines for this country without at least six months' practical study of the conditions, and it is here that 'Pat' has such a pull. Through all his extended cross-country flights, in every part of the country, he has been collecting data, and one realises how essential it is for a designer to be a really practical flier.

"I have arranged a meeting at Durban, to commence on July 15th, and after this 'Pat' and I join the Imperial troops near Pretoria to take part in the Army manœuvres here, at the invitation of the G.O.C.-in-C. We are both also delivering lectures to the officers of the garrison. We are doing our utmost to place aviation on a sound footing in South Africa, and there are indications that our efforts may be crowned with success."

The Latest Dope Developments.

Undoubtedly the most successful dope for aeroplanes' wings up to the present is Cellon, which is a species of non-inflammable celluloid. Arrangements are now being made to manufacture Cellon, both liquid and solid, in quantities in this country, so that it will be possible to obtain deliveries rapidly. A number of the most experienced aeroplane constructors are now using Cellon regularly. Mr. Cody's new biplane has been treated with it all over, and as a result it has been camping out on Laffan's Plain uncovered for a month without the slightest sign of its being affected by the weather. L. Howard Flanders, Ltd., are using it on their machines for the Royal Flying Corps, as are A. V. Roe and Co. The writer has tested its non-inflammable qualities in a variety of ways and can vouch for the fact that it will not burn when once set, the setting only taking a very short time.

As a dope for fabric, Cellon can be had either to shrink the fabric or not, as may be desired. In sheet form Cellon has been used with great success by A. V. Roe and Co. and Mr. Cody for transparent windows in their monoplanes.

The Week's Work.

MONDAY, June 24th.

Brooklands.—At Bristol School, 4 a.m., Mr. Hotchkiss out for solo, but weather too bad for school. At 7.30 p.m., Mr. Hotchkiss solus two circuits, weather too bad for school, and at 8.30 p.m. again up but still no good.

At Sopwith School, Mr. Raynham did one solo flight in morning, but found it much too bumpy for pupils. In evening again out for some circuits solus, and afterwards took up Capts. Wadham and Alston.

At Avro School, Lieut. Parke, R.N., out for straight lines in evening, Mr. Simms rolling and Mr. "Darracq" doing straights, all on 35-h.p. Green machine.

At Vickers School, Mr. Hunter and Capt. Darbyshire on *No. 2* doing straight lines.

Brighton-Shoreham.—Mr. Dowland short flights, but engine not up to mark.

Eastchurch.—Mr. Dunne on Dunne monoplane had misfortune to damage machine through the engine failing while making a low turn down wind. Mr. Dunne escaped without hurt.

Commander Samson, R.N., out between showers on school biplane doing bomb-dropping practice, the bombs being held by means of Walker's patent releasers.

Hendon (Grahame-White School).—No flying in morning; in evening Capt. Salmond doing straights with M. Noel in passenger seat, and M. Noel piloting Lieut. Cholmondeley and Mr. Wynne on *F.7*.

At Blériot School, at 8 p.m., Mr. Hall did couple of circuits.

The Plain (R.F.C.).—In morning Capt. Brooke-Popham four splendid flights on Avro, taking up Lieut. Thompson and Lieut. Reynolds as passengers. Later, Lieut. Fox out with 70-h.p. Blériot, and made flight for ¾ hour, reaching very good height. After coming off Blériot, Lieut. Fox did another two good flights on *B.E.3*. First flight with passenger for one hour. He disappeared for ¼ hour, flying in clouds all time. Came down with splendid glide, engine shut off. Second flight reached 3,000 ft. and kept same height for one hour. Passenger with Lieut. Fox first trip was officer in Italian Army, a Nieuport pilot, who had been in the war in Tripoli, observing from the machine. Lieut. Conner out on Nieuport flying well 15 mins., and for second trip also of 15 mins. In evening, Capt. Brooke-Popham out on the Avro, reaching 1,000 ft. Capt. Burke arrived from Farnborough on *B.E.1*., bringing a passenger with him. Lieut. Fox out on *B.E.3*. making six flights all told. Last was long trip with passenger for 1 hour, reaching 2,000 ft. Lieut. Porter out on *F.7*., and afterwards on *F.8* for ½ hour. Lieut Hartree on *F.7*., after which Corpl. Ridd did splendid flight for 20 mins.

The Plain (Bristol School).—In evening Mr. Smith-Barry out giving tuition to Mr. Featherstone, Lieut. Christy and Mr. Barnwell. Messrs. Campbell, Greig and Barnwell out getting rolling practice on monoplanes. Major Boyd Moss passed tests for certificate in fine style. Mr Busteed good flight on monoplane.

TUESDAY, June 25th.

Brooklands.—Morning and evening, weather bad.

At Sopwith School, Mr. Raynham, in morning, at first solus, afterwards out with Capt. Wadham.

At Deperdussin School, Lieut. Gill out on brevêt machine, then pupils rolling.

Dover.—Mr. Valentine arrived on Bristol *en route* for France about 8 p.m. in a high wind, flying splendidly.

Eastchurch.—Early morning, Capt. Gordon, R.M.L.I., with Lieut. Briggs, R.N., out on Short biplane, but found wind so unsteady that they were obliged to return. This finished flying for day, till Mr. Valentine started for Dover at 7.15 p.m.

Hendon (Grahame-White School).—Too rough for school work. In morning Mr. Lewis Turner started for Chelmsford on Howard Wright, but had to come down at Harlow, landing in small field. When trying to get out, ran into a tree in avoiding foolish people on ground, damaging machine.

The Plain (R.F.C. and Bristol School).—Weather bad. Work confined to hangars.

WEDNESDAY, June 26th.

Brooklands.—At Bristol School, 7 p.m., Mr. Hotchkiss first out for solo; weather very bumpy. Mr. Kemp for circuit on biplane, Mr. Bendall also out. At 8 p.m., Mr. Hotchkiss out again, Mr. Bendall two circuits with Capt. Macdonell and later with Lieut. Waldron. Wind too bad for pupils' solos.

At Sopwith School, Mr. Raynham one solo in morning, and in evening, Capts. Alston and Wadham, with Mr. Raynham partially controlling.

At Vickers School, Mr. Macdonald out doing straight lines on *No. 5* in gusty wind.

Dover.—Mr. Valentine, on Bristol monoplane, started for Dieppe, but Gnôme went wrong and let him down inland of Wissant, between Calais and Boulogne. Got into Calais in time to telegraph to his mother, but no news received elsewhere, so papers of following day had hopes of "another airman lost at sea," and made the most of them in their posters.

Mr. Chalmers out with Farman, but after trial came down.

Eastchurch.—Lieut. Gregory, R.N., out on school *S.34*. with 70-h.p. engine in place of 50-h.p., which greatly improved her lifting capacity.

Capt. Gordon, R.M.L.I., on *S.38*. taking several observers as passengers. Lieut. Gregory out on *S.34*. quickly climbed to 1,200 ft., alighting after dark by aid of bonfire.

Hendon (Grahame-White School).—In morning M. Noel started for Chelmsford on *F.7*., but engine went wrong, and he had to come down at South Tottenham. In evening Mr. Grahame-White flew repaired Howard Wright to Chelmsford—"haste to the wedding."

At W. H. Ewen School late in evening, in spite of wind, Mr. Ewen with Mr. Warren out testing Caudron two-seater.

The Plain (R.F.C.).—Capt. Brooke-Popham out three times times on Avro. Capt. Burke out on *B.E.1*. doing two flights, second flight with Lieut. Furgusson as passenger. Lieut. Fox out again on *B.E.3*., reaching 4,000 ft. and coming down with splendid glide. His next flight was with Lieut. Ireland as passenger. Made two more flights afterwards, his last trip flying out of sight, and owing to petrol pipe breaking had to descend about 7 miles from sheds. Lieut. Conner out on Nieuport, flying very well for 20 mins. In evening strong wind, but in spite of it, Lieut. Fox again to front flying *B.E.3*. from place where he had to descend in morning. Arrived at 1,000 ft. and came down with engine shut off. *B.E.3*. flies remarkably well in strong wind.

Later flying excellent, Lieut. Fox doing four good flights of 20 mins. each on *B.E.3*. Capt. Burke also did four good flights, one with passenger for ½ hour. Capt. Brooke-Popham put in two good flights on Avro, his first for ¾ hour and the second for ½ hour.

THURSDAY, June 27th.

Brooklands.—At Bristol School, 4 a.m., Mr. Hotchkiss out with Capt. Macdonell twice doing right and left turns. Then with Mr. Summerfield. Mr. Bendall a solo, then up twice with Capt. Macdonell. Mr. Hotchkiss solus, then up with Beeson, one of school mechanics. Mr. Bendall then out with Willis, another mechanic, for couple of circuits. In evening, Mr. Bendall solus. Weather still rotten.

At Sopwith School, Messrs. Herbert, Webb-Bowen, and Capt. Wadham doing circuits.

At Vickers School, Mr. Macdonald doing straights on *No. 5* to test machine, then Capt. Darbyshire on same machine.

Martin Handasyde, for Flying Corps, doing straights with Mr. Bell up, and engine only firing on about five cylinders.

Brighton-Shoreham.—Disgusted with waiting for weather, so Mr. Dowland took 'bus out and did several fine right- and left-hand turns in gusty wind, machine flying excellently.

Cambridge.—Mr. W. H. Ewen, with Mr. Warren as passenger, arrived on Caudron in very early morning, waking up sleepy city. Later in day gave capital exhibition flights in very nasty wind. 50 miles from Hendon covered in 44 mins.

Dover.—Mr. Chalmers out in early morning, but engine again failed him, and he was brought down rather badly close to the same place as his previous smash, breaking a few stays and the propeller, but, fortunately, without personal injury.

Eastchurch.—The Short machines *T.1*., *T.2*., *T.3*., all out doing practice with Capt. Gordon, R.M.L.I., and Lieuts. Hewlett and Malone, R.N., in charge.

Mr. Alec Ogilvie out on the N.E.C.-Ogilvie-Wright with Mr. Fowler as passenger, putting in flight of 1 hour 10 mins. and maintaining height of 2,000 ft. for greater part of time.

Hendon (Grahame-White School).—In morning Capt. Salmond and Mr. Fuller doing straights on Sommer with Mr. Travers, Capt. Halahan and Mr. Cholmondeley having lessons in passenger seat. Mrs. Stocks and M. Desoutter flying the 35-h.p. Anzani Blériot (B2), the latter making a flight of 45 mins.

At W. H. Ewen School, pupils out at 5 o'clock and put in splendid morning's work. Mr. Baumann doing excellent circuits on "Dep." at good altitude. Mr. G. H. James flying straights across ground, while Mr. H. James rolled good straights on Blériot. Mr. Denis Ware also making good

straight flights at 10 ft. All pupils making good progress and several will soon be able to take brevêts.

At Blériot School, 5 a.m., weather fine, no wind or mist, M. Aubert did two circuits preparatory to going for brevêt, but landing somewhat steeply, did slight damage to chassis. M. Gandillon rolled.

The Plain (R.F.C.).—Corpl Ridd out on *F.7.* making two flights for ½ hour. Lieut. Conner two good flights on the 50-h.p. Nieuport for ½ hour. Lieut. Fox on 70-h.p. Blériot one flight two hours and reaching an altitude of 7,400 ft. A splendid performance. Later, Capt. Loraine out on Nieuport for 20 mins. doing some good solos.

This being big field-day, following pilots were out observing: Capt. Brooke-Popham on Avro, Capt. Burke on the *B.E.1.*, and Lieut. Fox on *B.E.3.* Much flying and observation for several hours. Wind 20 to 25 miles per hour, but all still continued to fly. Capt. Loraine was to have taken part on Nieuport with a passenger, but machine failed to lift, and in trying to get away, he slightly damaged a propeller. In evening Lieut. Fox out on *B.E.3.*, putting in good flying for ½ hour and ¼ hour. Later Capt. Brooke-Popham out on Avro for 20 mins., flying well. Capt. Loraine did two good flights on 70-h.p. Nieuport for 20 mins.

The Plain (Bristol School).—Mr. Pizey flight in evening on biplane 66a, whilst Mr. Busteed was out on monoplane, but wind was very strong and gusty, and further flying was not attempted.

FRIDAY, June 28th.

Brooklands.—Bristol School, weather too bad for pupils.

At Sopwith School, no flying, the wind being too high.

At Vickers School, Mr. Macdonald on *No. 5* doing straights and curves in nasty wind.

Martin Handasyde, Antoinette-type machine, with Mr. Bell up, did circuits.

Eastchurch.—No flying until evening, when Henry Farman hydro-aeroplane did short test flight with M. Fischer at helm.

Hendon (Grahame-White School).—No school work. Mr. Travers flew *F.7.* from S. Tottenham to Chingford, M. Noel having gone to the Farman works at Billancourt to bring over a new machine.

Nottingham.—Mr. Robert Slack, I.C.S. pilot, started from here in evening for Birmingham, but was obliged to come down through engine trouble in hayfield four miles south of Ashby-de-la-Zouche. No damage to man or machine.

Peterborough.—Mr. W. H. Ewen and Mr. Warren on Caudron arrived from St. Neots, where they had been beaten down by big wind, which blew them 15 miles off correct course. At 7 p.m. made fresh start and, wind changing direction, they covered the 37 miles in about half an hour.

The Plain (R.F.C.).—Lieut. Fox on *B.E.3.* flying for 40 mins. (two flights). Capt. Brooke-Popham on Avro for 20 mins. Capt. Loraine on 70-h.p. Nieuport for 15 mins. (two flights). Lieut. Fox two flights on *B.E.3.* for 30 mins. Capt. Brooke-Popham on Avro for 36 mins., after which he did two more good flights, both with passengers. Capt. Loraine on the 70-h.p. Nieuport again. Lieut. Hartree on *F.7.* Lieut. Fox two more flights, one reaching 4,300 ft., gliding down in spiral.

The Plain (Bristol School).—Rain and wind prevented any flying. In evening Mr. Pizey made two trials of weather, but decided wind too gusty.

SATURDAY, June 29th.

Brooklands.—At Bristol School, 4 a.m., Mr. Hotchkiss a solo, then up with Mr. Holyoake for two circuits, afterwards taking Mr. Summerfield for circuit. Weather too bad for school work and pupils' solos.

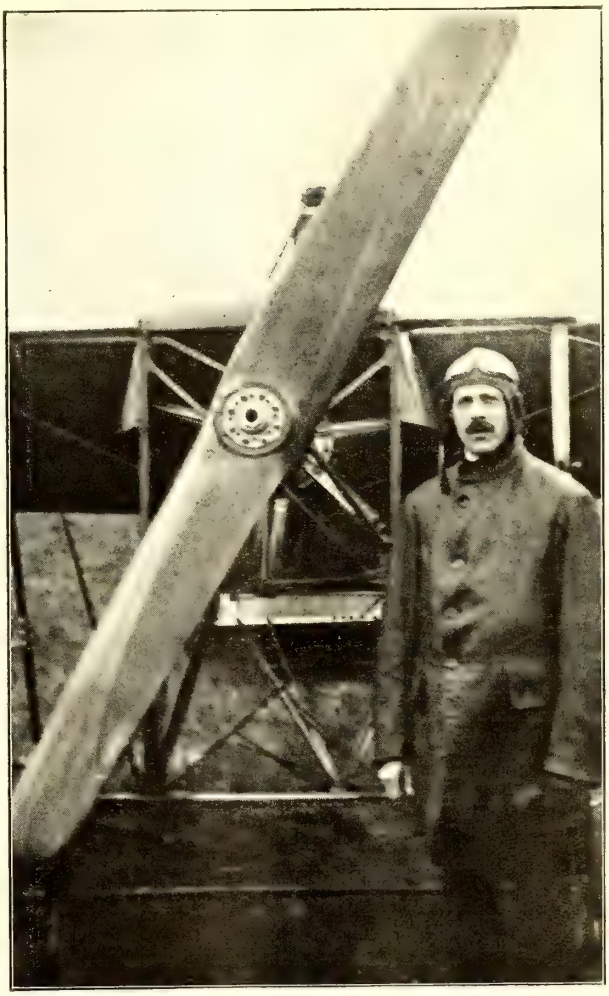
Mr. Bendall started out for circuit in afternoon, but when about 30 ft. up was caught by a gust which put him on to his side and nose, demolishing machine completely. Pilot very badly bruised and shaken.

At Sopwith School, Mr. Raynham out on Farman and later Mr. Sopwith. Then Mr. Raynham on Wright in the evening. Later on Mr. Webb-Bowen did several circuits solus on school Farman. New tractor biplane of Sopwith construction was also tested and shaped very well, carrying pilot and two passengers with greatest ease, and afterwards doing a couple of circuits in great form.

At Vickers School, Mr. Macdonald took out *No. 5* and made a short but splendid cross-country flight in very gusty wind, flying over Captain Wood's house.

At Deperdussin School, Lieut. Porte, R.N., out on the British-built passenger machine with Marconi operator as passenger, testing aerials. Engine pulling and machine climbing exceptionally well.

Brighton-Shoreham.—Mr. G. N. Humphrey (new pupil) joined school.



Mr. Crawshay, who is flying so well at Hendon, with his Blériot and its Cyrnos propeller.

Eastchurch.—Early morning (5 a.m.), M. Fischer flew Henry Farman hydro-aeroplane over to Grain Island for water tests. Mr. Alec Ogilvie started 5.30 a.m. with Mr. Fowler as passenger to fly over Burntwick Island to see if Henry Farman could be seen easily from 1,700 ft. It had, however, alighted, and was some time before it could be found owing to its dark brown colour. In evening Commander Samson, R.N., flew Henry Farman back from Burntwick Island to aerodrome.

Mr. Alec Ogilvie took N.E.C. machine for a "straight" with four up, himself, Mr. Seawright, Lieut. Briggs, and Mr. Fowler, and the machine had no difficulty in lifting. Mrs. Capper had short trip on Mr. Ogilvie's machine and was much impressed with the comfortable seating accommodation as compared with other machines in which she had flown, also rapid climbing machine did.

Hendon (Grahame-White School).—No school work. Afternoon's flying reported elsewhere.

At Blériot School, Mr. Crawshay out in evening on his 50-h.p. Blériot.

The Plain (R.F.C.).—No flying in morning, weather too bad. In evening Capt. Brooke-Popham out on Avro for 20 mins. Later he was out again, taking up 2 passengers. Lieut. Fox on *B.E.3.*, making 5 good flights, taking up Sapper Attree. Capt. Loraine on 50-h.p. Nieuport, two flights, for ¾ hour. Lieut. Fox very good flight on 70-h.p. Blériot for 15 mins. Capt. Brooke-Popham on *F.7.*, with Sapper Strugnell as passenger, for instruction. Lieut. Hartree on *F.7.*, 2 flights. Staff-Sergt. Wilson on *F.7.* Lieut. Fox took Sapper McCudden up on *F.3.* for instructions. Capt. Brooke-Popham on *F.7.*, and afterwards Staff-Sergt. Wilson.

The Plain (Bristol School.)—Mr. Harrisson out first in the evening, finding weather gusty. Lieut. Head, R.N., out for solo on biplane No. 55a. Later Mr. Pizey out for trial, afterwards taking Mr. Gould, a new pupil, for two tuition trips

on biplane No. 19. Mr. Pizey then out with Mr. Gould in two-seater monoplane, immediately afterwards taking prospective pupil for trip. Mr. Harrisson busy giving tuition flights to Mr. Featherstone and Lieut. Gould, both pupils taking charge of control. Messrs. Campbell, Barnwell, Greig, England and Pickles each made three solos on school single-seater monoplanes.

Mr. Bettington arrived from Brooklands and made complete circuit on the Bristol Anzani monoplane. Lieut. Head out for good flight on two-seater monoplane, landing well. Mr. Bettington out for another splendid flight on double-seater monoplane. Lieut. Ashton out for practice flight on biplane No. 66a, Mr. Lister, Lieut. Christy, and Mr. Rawson Shaw each making three solos on biplane No. 55, the two latter pupils practically ready to go for certificates. Mr. Busteed out on new monoplane and made magnificent flight. During the evening 31 flights made on Bristol Anzani monoplane alone, as well as all other machines.

SUNDAY, June 30th.

Brooklands.—At Sopwith School, Mr. Webb-Bowen obtained certificate in morning, flying very well indeed, and Capt. Wadham doing circuits and eights. Mr. Waldron out in evening on Farman doing circuits.

Coventry Ordnance out doing circuits with Mr. Sopwith at wheel.

Martin Handasyde, piloted by Mr. Bell, going strong all evening.

British-built Deperdussin two-seater out with Capt. Loraine doing right- and left-hand circuits, finishing with pretty spiral. Then with Lieut. Porte, R.N., who disappeared in the direction of Brighton at about 2,000 ft.

At Vickers School, *No.* 5 out in afternoon with Mr. Macdonald for couple of circuits, but owing to propeller trouble soon came in.

Speed handicap round pylons for Miss Morritt's Prize was won by Mr. Spencer on his biplane, with Mr. Sopwith second.

Eastchurch.—Hon. Maurice Egerton out on triple-twin machine. Mr. Alec Ogilvie out on N.E.C., taking in turn Mrs. Vaughan Fowler, and Messrs. Seawright and Fowler as passengers.

Hendon (Grahame-White School).—No school work. Mr. Travers flew *F.7.* to Hendon. Good exhibition flying.

At Blériot School, Mr. Crawshay out on his 50-h.p. Blériot in afternoon. Mr. Hucks and Mr. Hamel flying splendidly.

The Plain (R.F.C.).—Capt. Loraine on Nieuport for 10 mins. and after on same for 30 mins. Capt. Brooke-Popham on *F.7.*, taking up Sapper Strugnell for instructions. Staff-Sergeant Wilson two good flights on *F.7* afterwards.

The Plain (Bristol School).—Mr. Pizey started with Lieut. Gould as passenger in two-seater monoplane, afterwards taking same pupil for three tuition trips of 15 mins. each on biplane No. 19. Mr. Pizey also gave flight to Lieut. Hall in monoplane. Mr. Harrisson took Lieut. Hall for three tuition flights. This pupil has shown extraordinary progress.

Mr. Lister, Lieut. Christy and Mr. Rawson Shaw each made three trips on biplane No. 66a, whilst Messrs. Campbell, Greig, England and Pickles made five solos each on school monoplanes, Lieut. Head also making two flights and Harrisson three. Altogether 60 flights were made on the monoplanes, with not as much as a piece of wire broken, which speaks wonders for the landing chassis of Bristols and the instruction meted out by Mr. Pizey and his staff.

Mr. Bettington out for three flights on two-seater monoplane, in the third disappearing in the clouds at altitude of 1,500 ft. and staying up 20 mins. Mr. Smith-Barry also out for two flights on double-seater monoplane, making both right- and left-hand turns with steep bankings. Lieut. Head up for three good solos on monoplane, in each completing several circuits.

Mr. Busteed took out new monoplane and made a good flight.

Wind and rain prevented any flying in the evening.

Waterloo (Liverpool).—After incessant winds during past week both Messrs. Hardman and Birch out doing circuits and straights alternately from 7 a.m. till 10 a.m. Both did circles to right and left and showed proficiency in *vols planés* from 60 ft. or 70 ft. The control by both was all that could be desired.

The Aeronautical Society.

A subscription list has been opened to found a memorial to the late Wilbur Wright, as an appreciation of his great work and also as some small recognition of the support he gave to the society. The memorial is to take the form of a Premium Lecture on Aeronautics to be delivered annually, and to be called the "Wilbur Wright Lecture." It is hoped that members will give their generous support to enable this lecture to be given in perpetuity and to be of such value that it will become the greatest honour of the year. The fund will be administered by trustees.

The following is a list of donations already received :—Lord Northcliffe, £50; Alec Ogilvie, £50; F. K. McClean, £26 5s.; Griffith Brewer, £10 10s.; Mervyn O'Gorman, £10 10s.; T. P. Searight, £10; Major-General R. M. Ruck, £3 3s.; V. Le Cren, £2 2s.; Major B. F. S. Baden-Powell, £1 1s.; A. E. Berriman, £1 1s.; T. W. K. Clarke, £1 1s.; J. W. Dunne, £1 1s.; H. Massac Buist, £1; Colonel H. S. Massy, 10s. 6d.; T. O'B. Hubbard, 10s. 6d.; H. A. Turrill, 10s. 6d.

Mr. Patrick Y. Alexander has donated £100 to the fund.

Mr. Bendall's Narrow Escape.

If ever a man escaped death by an accident it was Mr. Bendall on Saturday last at Brooklands. He was just starting out with the wind behind, and had got about 30 ft. off the ground, when a gust, coming over the banking of the track, tilted up the right wing of his box-kite, and, in spite of the use of ailerons and rudders, the machine heeled almost vertically on to the left wing tip. The wing tip touched, and the machine came down absolutely on its elevator. Mr. Bendall was thrown clear out, and then the whole machine appeared to collapse bodily on top of him.

When he was picked up, it was found that the engine, tanks, and engine bearers had come away in one solid mass from the rest of the machine, and had turned over on top of the pilot, who was held down by the tanks. If he had been thrown about a foot farther forward, the whole weight of the engine would have come on to him. As it was, the end of the big petrol tank was dented by the impact with his body. If the machine had caught fire, Mr. Bendall could not have got free, because it was only possible to release him by rolling the engine and tanks sideways off him.

Seldom has a machine been so completely smashed, for actually there was scarcely one unbroken piece of wood in the whole outfit, except two of the tail booms, even the tail being smashed by the tail skid being driven through the lower plane. In itself, so far as length of fall and speed were concerned, the smash was not nearly as bad as has happened to quite a number of tractor biplanes, which have been very little damaged in the process. Fortunately Mr. Bendall had nothing whatever broken himself, but he suffered rather severely from the shock, and was advised by the doctor to take a few days' rest. The accident was no fault of his.

French Hydro-Aeroplane Meeting.

A Hydro-Aeroplane Meeting will take place on August 26th, 27th, and 28th, 1912, in the Bay of St Malo. 38,000 francs are offered in prizes, and among other events there will be a hydro-aeroplane race, on August 28th, from the Bay of St. Malo to the Isle of Jersey and back.

Experimental Models.

The Eclipse Manufacturing Company has some beautifully made experimental models at its Richmond workshop at present. It was one of the first firms, if not the first, in this country to devote itself entirely to the manufacture of model aeroplanes, and the proprietor, Mr. Donald Stevenson, has had considerable experience of this particular class of work, having made a special study of aviation and aeroplane construction for the last eight years. Several devices used on model aeroplanes to-day owe their origin to him.

They have a fine 7 ft. 6 in. span experimental model made to show the working of the Mammatt automatic stability device. Everyone may not agree as to mechanical stability, but Mr. Mammatt's invention is undoubtedly one of the most interesting and ingenious yet put forward. It is a simple arrangement of flaps whereby it is hoped to make wind gusts counteract their own ill effects. It is patent No. 25,856 of 1911.

Since this firm started, it has developed other branches of experimental work, and Mr. Stevenson is now interested in light power plants, ¼ h.p. and upwards, and will be putting on the market shortly a steam plant weighing about 5 lbs., which will drive a 20 in. propeller at 1,800 revs. per min. They are also making, under contract, some 1 h.p. petrol engines which are to weigh about 6 lbs. complete, and more will undoubtedly be heard of these later. These engines should go far towards solving the problem of light motive power for large models. The firm makes a speciality of working out inventors' ideas and putting them into practical form.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.
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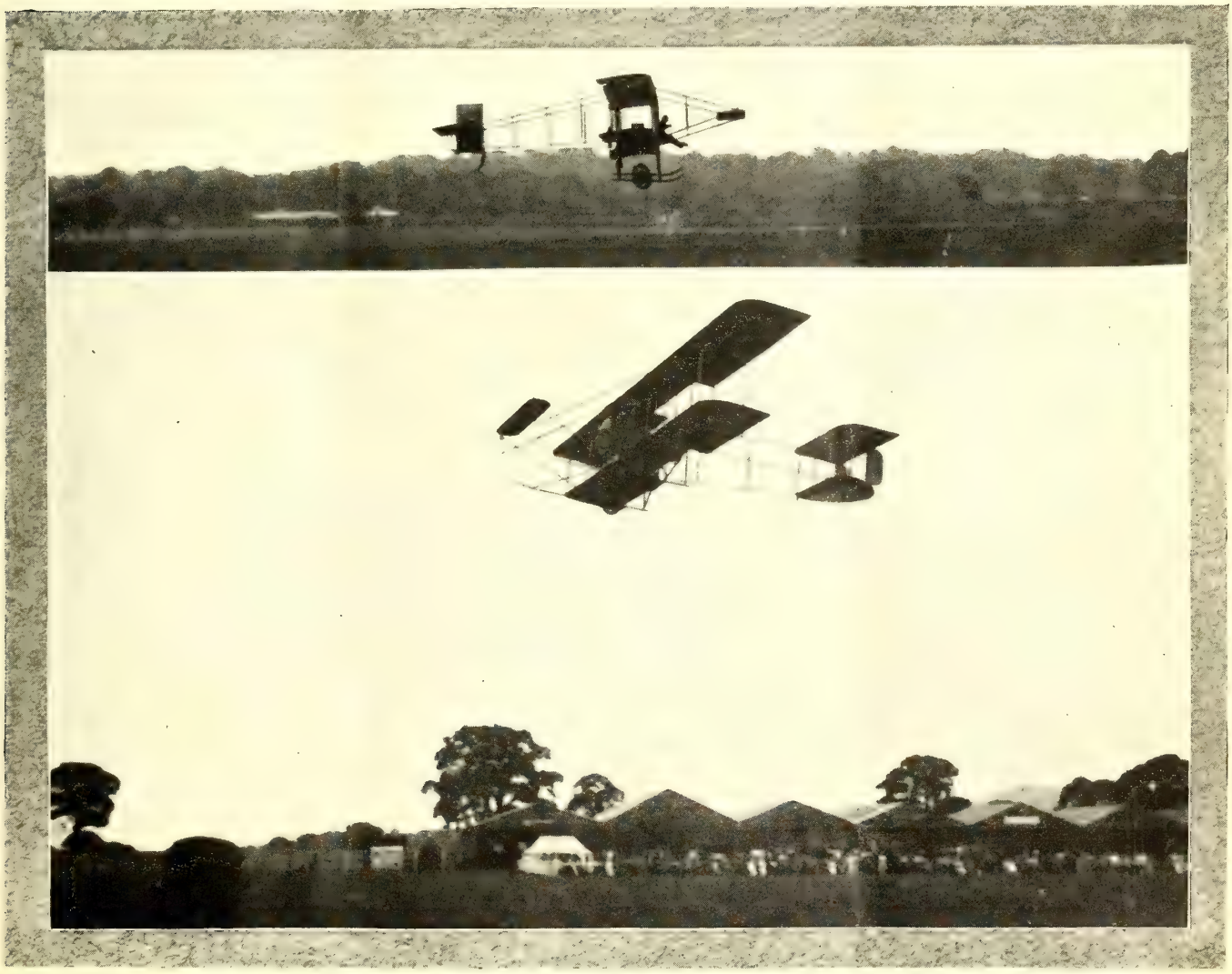
THE AEROPLANE

1d WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, JULY 11, 1912. No. 2.

ANCIENT AND MODERN.



The two prize-winners at Hendon on Saturday. Above, Mr. Lewis Turner on the 1910 pattern Howard Wright, and M. Verrier on the 1912 pattern Maurice Farman.

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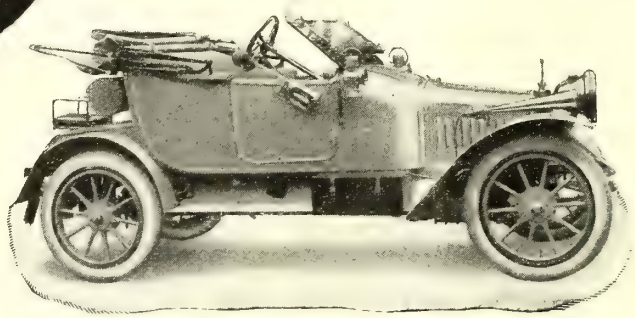
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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Aileron, London.

THE MILITARY AEROPLANE COMPETITION.

Everything points to the probability of the Military Aeroplane Competition to be held throughout August on Salisbury Plain being the most successful aviation meeting the world has yet seen. The aerodrome is magnificent, for what could be better than the vast expanse of the Plain? The entries are capital, comprising thirty-two machines, of which something close on thirty are certain starters. The judging will be absolutely fair, for the status of the Judges' Committee guarantees lack of bias in favour of any one country or maker. The audience will be both highly appreciative and keenly critical, for the majority of the spectators will have more or less personal interest in aviation, and, though there is sure to be a goodly crowd of sightseers as well, no one is likely to journey all the way to the Plain unless he or she is really keen on flying. The management of the meeting will be above reproach, for it will be under military control, and there will be one rule for everybody. The only uncertain quality is the weather, and that is quite likely to be good, simply because June and July have been and are so bad. Altogether, those lucky individuals who are connected with the competing machines, and who will have a month under canvas on the Plain, are much to be envied by us poor people who will have to put in most of our time in a London office writing about them. Let us hope that the trials will pass off without serious accident, and that at the finish so much may have been done and seen that not only may the authorities make up their minds to order aeroplanes in really large quantities, but that sufficient enthusiasm may be roused among the civilian population to bring about a general influx of sportsmen of the right kind into the sporting side of the movement.

The Entries.

Let us then consider the official list of entries as communicated by the War Office on July 2nd. These read thusly:—

Name of Firm.	Number of Aeroplanes.
Hanriot (England), Ltd. ...	2
Vickers, Ltd.	1
Louis Blériot	2
A. V. Roe and Co. ...	2
Bréguet Aeroplanes, Ltd.	2
Coventry Ordnance Works, Ltd.	2
British and Colonial Aeroplane Co., Ltd.	4
L. Howard-Flanders, Ltd.	1
Martin and Handasyde ...	1
Aerial Wheel Syndicate, Ltd.	1
Mersey Aeroplane Co. ...	1
British Deperdussin Aeroplane Co., Ltd.	2
Aircraft Manufacturing Co., Ltd.	1
C. E. Kny, Esq.	1
Jacob Lohner and Co. ...	1
A. M. Harper	1
Piggott Brothers and Co., Ltd.	1
Handley Page, Ltd. ...	1
Armand Deperdussin ...	2
S. F. Cody, Esq.	2
Societe Anonyme des Aeroplanes Borel	1

War Office, July 2nd, 1912.

The Hanriot machines will both be French built. They contain many novel features, and one gathers that these include a novel device for folding the wings quickly for transport. Mr. Sydney V. Sippe is to pilot one, and the pilot of the other is M. Bielovucic, the well-known Peruvian aviator.

The Vickers machine is the new side-by-side two-seater monoplane, with a 70 h.p. Viale engine, which flew so well from Erith to Brooklands and thence to Aldenham, where it was accidentally turned over in a barley field.

M. Blériot is sending a new type side-by-side monoplane, and a tandem two-seater, differing from machines of his make hitherto seen in this country by being equipped, according to the rules of the competition, *á double direction*—which does not mean that they fly either head or tail first.

A. V. Roe and Co. will have two of their familiar biplanes, one with a rotary engine and one probably with a high-powered Green engine. As their machines delivered to the Royal Flying Corps have already beaten the Royal Aircraft Factory biplanes, which were expressly designed to show the possibility of passing the Competition tests, the Avros may be sure of putting up a good performance.

The Bréguet firm will use two French-built machines, one of which will be piloted by Mr. W. B. R. Moorhouse and the other by M. Moineau. The machines are good, as they showed in the French trials, and should show up well.

One of the two Coventry Ordnance machines is the big biplane with the 100 h.p. Gnôme, which has been flying well at Brooklands since the new triple Coventry chain was fitted to the geared-down propeller. The other is a somewhat similar machine, but with a 120 h.p. Chenu engine, in which the propeller gearing is integral with the engine itself, so that no chain is needed. Mr. T. O. M. Sopwith will drive both machines.

The Bristols, so far as can be gathered at present, will show considerable variety, embracing probably a tandem monoplane, a side-by-side monoplane, and a couple of tractor biplanes.

The single Flanders entry is a tractor biplane of the simplest possible type, but excellently designed and full of clever details. If the engine can be got ready in time, it will have a 100 h.p. A.B.C.

Martin and Handasyde have a monoplane of Antoinette type, but with a streamline superstructure on top of the usual deck. The engine will probably be a 100 h.p. Chenu. In general lines the machine is similar to that which the late D. G. Gilmour used to fly so well, but it is somewhat bigger all round, and so needs bigger power than the ordinary 60 h.p. Antoinette can give, even when tuned by Mr. Handasyde.

As regards the Aerial Wheel Syndicate's entry, no news has yet been received of any machine of theirs having flown, but the chief feature of the firm's design is that, instead of a conventional chassis, the machine has a pair of enormous wheels fixed to the wings, being supported internally on each side of the fuselage by what would be the chassis struts, and by the front and rear spars. Outside each of these fixed wheels is a rim concentric with the fixed wheel, and running on it with rollers interposed, so that when the machine alights it comes down on these huge wheels, which are supposed to allow it to roll over obstacles which would trip up ordinary skids. They will doubtless do so, unless they twist or jam, which seems likely, and in any case the weight of the apparatus must be considerably above that of an ordinary chassis.

The Mersey Aeroplane Co. have a monoplane which, if built with the conveniences of a big factory behind it, would certainly be one of the successes of the trials,

and, even roughly built as it is, it should give a good account of itself. It has the engine, an Isaacson radial, in front, with a geared-down propeller at the tail of the fuselage, which is only a little longer than the chord of the wings. The tail, rudder, and elevator are carried on long booms out behind.

The British Deperdussin Co. are entering two machines, both built at the firm's works in London. These will, of course, be of the latest type, with the deep streamlined body, and probably one will be fitted with a Gnôme and the other with an Anzani.

The Aircraft Manufacturing Co., Ltd., have entered a British-built Maurice Farman, which will be piloted by M. Verrier. This machine will be exactly similar in design to the one which has been flying so excellently at Hendon, and will have a 70 h.p. Renault engine.

Herr C. E. Kny, an Austrian engineer resident in London, has entered a Mars monoplane, built by the Deutsche Flugzeug Werke of Leipzig. This machine is a sort of German Etrich, having the typical Etrich upturned wings and warping tail. The whole machine is streamlined, engine included, and the pilot and passenger are well protected, with the big engine in front, and plenty of material all round to absorb shocks. The engine is a 100 h.p. Mercédés, driving the propeller direct. A machine of similar type, fully loaded, has already reached a speed of 80 miles per hour. The pilot of this machine will probably be Lieut. Bier, who will be remembered as flying an Etrich in the Circuit of Britain.

Jacob Lohner and Co., who are also represented in this country by Mr. Kny, are sending over the identical machine, known as the "Arrow-Plane," on which Lieut. von Blaschke broke the world's altitude records at the Vienna meeting on June 23rd and 29th. He took two passengers besides himself, one of them being his fiancée, to a height of 3,500 metres (about 11,400 ft.), and one passenger to 4,260 metres (about 13,900 ft.). This machine is of the Army type, which has the propeller driven direct, the Naval type differing by having the tractor chain-driven and geared down. The planes of this machine are swept back in a manner similar to that of the Dunne, and it is driven by a 120 h.p. Austro-Daimler engine. Lieut. von Blaschke will probably be the pilot.

Mr. A. Monnier Harper has recently become one of the moving spirits in the firm of Weston Hurlin and Co. At the moment of writing no particulars of the machine which is entered have come to hand, but it will probably be a tractor biplane.

Piggott Bros. and Co., Ltd., will be remembered as the makers of the "Portly Piggott," which was shown at the last Olympia show. This machine has since been used for experimental purposes at Hendon, and it is probable that something of a similar type, but modified, may appear for the trials.

Handley Page, Ltd., have just completed for the trials a machine of a type very similar to that shown by them at Olympia—namely, a monoplane with a short carefully streamlined fuselage, and wings of big span, built more or less on the Etrich principle. The pilot will be Mr. E. Petre, more commonly known as "Peter the Painter." It will be news to many people to hear that some weeks ago Mr. Petre flew from Fairlop, near Ilford, across country to the firm's works at Barking, the latter part of the journey being down the Thames, on a machine of very similar type, fitted with a 50 h.p. engine. This machine, though rather slow, proved to be exceedingly stable and a wonderful climber, in spite of the engine being about 200 r.p.m. short.

M. Armand Deperdussin enters two machines, which are presumably French-built Deperdussin monoplanes, embodying the firm's latest improvements.

Mr. S. F. Cody enters two machines, one of them being his big monoplane, which was illustrated recently, and the other his Circuit biplane. The latter was rather badly wrecked by one of his pupils, Lieut. Kelly, recently, and consequently may not be repaired in time to start, and unfortunately his big monoplane had a contretemps with a cow on Monday, which may put it also out of the trials. One can only hope he may have one or other ready in time, as either would make a good show.

The Borel firm have entered one monoplane, which is a tandem two-seater, of a type something like the Morane-Saulnier.

It will thus be seen that thirty-two machines have been entered by twenty-one firms and individuals. Eleven of these are British limited companies, one is a French limited company, three are British partnerships, one is an Austrian company, two are individual French entries, two are British individual entries, and one is that of an Austrian engineer, who enters a German machine—a nicely assorted lot.

Incidentally, it is curious to notice that, while Mr. Cody and Herr Kny are officially logged as "Esq.," no handle is given to Mr. Monnier Harper's name, and M. Blériot and M. Deperdussin also share the dignity given by lack of a titular prefix to theatrical stars and famous criminals. Below will be found a table giving figures relating to fourteen of the machines entered. The particulars have been kindly supplied by makers.

DETAILS OF THE MACHINES ENTERED FOR THE MILITARY COMPETITION.

Machine.	Type.	Span.	Length.	Weight (empty)	Engine.	Name of Pilot.
Avro	War Office Biplane, 1912 (o-P-2-1)	36 ft.	About 30 ft.	Roughly 1,250 lbs.	60 h.p. Green (weight 298 lbs.)	Lieut. Wilfred Parke, R.N.
British-built Maurice Farman	Military Biplane (1-2-P-2) ..	51 ft. 8 in.	39 ft. 6 in.	1,210 lbs.	70 h.p. Renault	Pierre Verrier
Mersey Aeroplane Co	Monoplane (o-1-P-1).. ..	35 ft.	24 ft.	750 lbs.	45 h.p. Isaacson	R. C. Fenwick
Flanders	Biplane (o-P-2-1)	43 ft.	32 ft.	1,000 lbs.	120 h.p. A.B.C.	W. R. Raynham
Blériot	Military XI-2, 1912 Tandem Monoplane (o-P-1-1) .	29 ft.	25 ft	About 600 lbs	70 h.p. Gnome	Gustav Hamel
Blériot	Military XXI, 1912 (Side-by-Side Monoplane) (o-P-1-1)	36½ ft.	27 ft.	About 700 lbs	70 h.p Gnome	Gustav Hamel
Martin-Handasyde ..	I.V.C. Monoplane (o-P-1-1)	42 ft.	38 ft.	1,250 lbs.	75 h.p. Chenu	Gordon Bell
Handley Page ..	Monoplane (o-P-1-1) ..	40 ft.	28 ft	850 lbs.	70 h.p. Gnome	E. Petre
Mars (Deutsche Flugzeng Werke) ..	Monoplane (o-P-1-1) ..	52 ft.	45 ft.	1.200 lbs.	100 h.p. Mercédés	Ober-Lieut. Bier.
Arrow-Plane (Jacob Lohner & Co.) ..	Biplane (o-P-2-1)	50 ft.	40 ft	1,584 lbs.	120 h.p. Austro-Daimler	Lieut. von Blaschke
Coventry No. 1 ..	Biplane (o-P-2-1)	40 ft.	34 ft.	1,100 lbs.	100 h.p. Gnome	T. O. M. Sopwith
Coventry No. 2 ..	Biplane (o-P-2-1)	35 ft.	32 ft.	1,250 lbs.	100 h.p. Chenu	T. O. M. Sopwith
Hanriot .. .	Monoplane (o-P-1-1)	liiting are	a 221 sq ft.	About 981 lbs	100 h.p.	Sydney V. Sippe
Cody	Monoplane (o-P-1-2)	46 ft. 6 in.	37 ft.	1,200 lbs approximately	120 h.p. Austro-Daimler	S. F. Cody

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Whit Monday	BROOKLANDS CROSS-COUNTRY SPEED HANDICAP, 2nd Heat	A.B.C. FIRST
Whit Monday	BROOKLANDS CROSS-COUNTRY SPEED HANDICAP, Final	A.B.C. FIRST
June 8	HENDON SPEED HANDICAP First Heat	A.B.C. FIRST
June 8	HENDON "SHELL" TROPHY Final	A.B.C. FIRST

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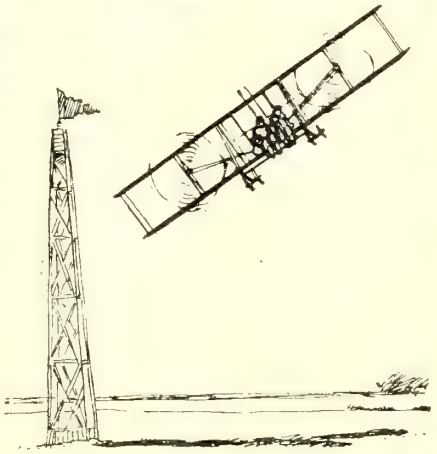
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A French Opinion on Organisation.

BY W. E. de B. WHITTAKER

There is published in France at monthly intervals a journal, entitled *Revue générale de l'aéronautique militaire théorique et pratique*, devoted exclusively to the subjects referred to in its title—that is, to all things germane to the study of aeronautics. Officers of high intellectual standing in the French Army contribute carefully reasoned treatises on the subjects with which they are each respectively cognisant, civilian theoreticians expound their theories, and aviators of proved excellence place on paper the summarised results of their experience. Detailed drawings of engines and aeroplanes of interest are published from time to time. There is nothing quite like it in this country, no journal confining its attention solely to the consideration of the application of the science of aviation to the art of war.

One can write for weeks and months on the subject of military aviation, consistently adhering to one group of views, and consistently expanding and expounding them without being apparently wrong in theory or practice. It may seem to the readers that the case put forward is unanswerable and supreme. Yet it is possible for there to be an entirely opposite view in constant disagreement, and yet equally accurate and unassailable. There is always more than one way of doing any one thing. And it is the realisation of this that makes it advisable for us to study any other available views on the subject of most interest to ourselves. Considerable modification of views follows attention to other people's opinions.

In the February issue of the above-mentioned periodical there appears an article by Captain Félix on "*Aviation Militaire.*" The author is the Commandant of the Military School of Aviation at Etampes. Well over a year ago he raised the height record to something over ten thousand feet. He is an officer of ability and promise, besides being a practical aviator of high excellence. There is more freedom in France for officers on the active list writing articles on controversial points of military organisation. It is only on rare occasions that one finds British officers writing for the public prints before their retirement. It is, in fact, difficult for them to write on Service matters without unwittingly divulging more than is quite good for the "man-in-the-street."

An aerial fleet has become to France what the Navy is to Great Britain. We talk ceaselessly of the necessity of remaining supreme on the seas, and it is now the custom in France to insist on remaining the "mistress of the air." Captain Félix points out that in most previous articles and speeches the position has been grasped wrongly. The development of large aerial fleets is essential in every country. The new arm must take its due and important place in the defences of the nations. But, as he says, the acquisition of aeroplanes is nothing. It is purely a question of money. Expenditure of gold will procure a fleet as large as may be required; but that is not all. A fleet of Dreadnoughts can be built rapidly if the Treasury agrees, but, perfect though the work be in design and execution, such a fleet would be of little greater use than the L.C.C. steamboats unless the organisation is highly efficient and the supply of trained and experienced men continuous.

In the Franco-German War the French Army did not fail by reason of lack of courage or depleted ranks. The men were there, and they were animated by the same courage as that of their ancestors who carried the white flag of the Bourbons or the tricolour of Napoleon to deathless victory on so many fields. The organisation was lacking, and those in high places lacked training and experience. The almost automatic precision of the Germans and the acquired genius of their leaders subjugated France, and not mere numbers or difference in equipment. And so it is with military aviation. Money may perform wonders, but it can only be spent to advantage by the use of considerable forethought and arrangement. As Captain Félix has it, there is insufficient distinction between *quantity* and *quality* under the present system. Each aeroplane bought must form part of a set plan, and for each a sufficiency of trained men must be supplied. Despite Mr. Horatio Bottomley, no government, and consequently no army, can be managed on the lines of a successful business It is, perhaps, opportune to quote Mr. Charles Harris, C.B., Assistant Financial Secretary to the War Office, on this point. He says: "The whole system of Army Finance is utterly unbusinesslike. Fleet Street recognises this and casts it in our teeth, using it as a formula of final condemnation. But I do not use the phrase as a criticism at all, because war is so essentially and inevitably unbusinesslike that I feel no surprise at finding that the financial methods of army administration are unbusinesslike too. On the contrary, I should be much surprised if, in spite of many points of contact between army and business affairs, there were not fundamental differences. For consider: the essence of business is to spend two shillings in order to get back half-a-crown. That is, the return at which business expenditure aims is a return in cash—a return which can be entered up in a ledger against the expenditure and a balance struck, showing profit or loss. But the return at which army expenditure aims is military efficiency—a thing which may be metaphorically more precious to a nation than rubies and than much fine gold, but which, unfortunately, cannot be priced and booked up in a ledger."

The whole of this extract applies to the position of military aeronautics. We want to buy efficiency for the Army as a whole, and not countless unuseable aeroplanes for one new arm in particular. Though the Army cannot be run as a business, the same rules apply often in both cases. Waste in both cases produces inefficiency. A workman will frequently do better work with good but insufficient tools than he will if he be overloaded with elaborate machinery. And this is what Captain Félix wishes to demonstrate. Organisation and training should proceed parallel with the purchase of aeroplanes and grounds.

He then proceeds to impress on his readers the urgent necessity of making the aeronautic section an independent arm of the Service. When aviation—unquestionably the most important section of aeronautics—entered on the military horizon, it seemed for the moment obvious that such dangerous mechanical contrivances as aeroplanes should be under the immediate care and control of the Engineer arm. In France, as in England, all questions dealing with instruments for the subjugation of the air were in the hands of the Engineers. Balloons, dirigible balloons, and kites had long occupied their attention, and it was natural that any new discovery should be entrusted to them for development. But Captain Félix is surely right when he says that, now aviation involves so very much, the Engineers should be relieved of this "heavy addition to their complex and varied duties (mines, railways, bridges, telegraphs, etc.)." He points out that the newly born science has grown as though it were nourished on the "Food of the Gods" of H. G. Wells. At the time he wrote, the French Parliament had made a grant of 23,000,000 francs for military aviation, but no details of organisation had yet been issued.

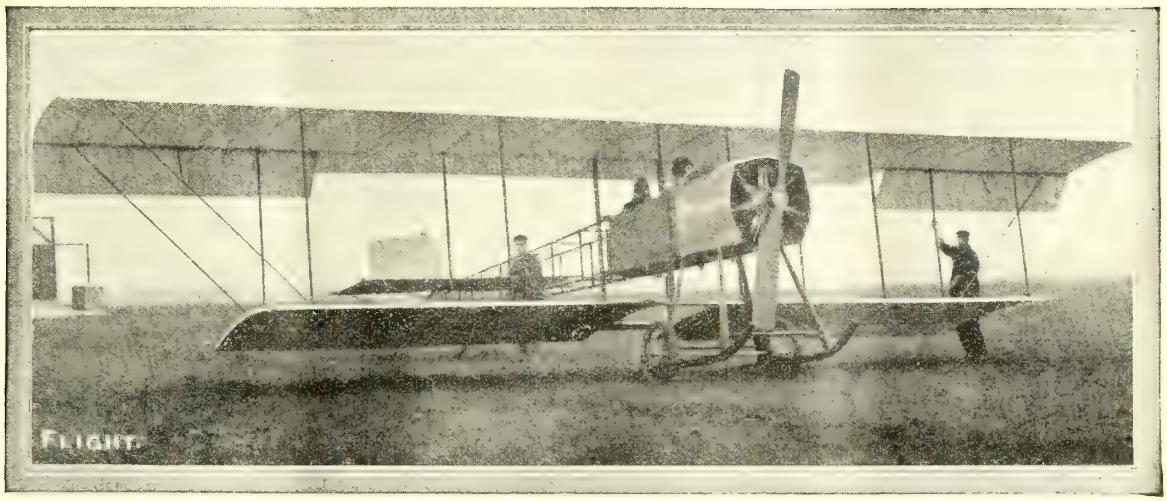
In the absence of any scheme he suggests his own, which is as follows:—

(1) A single central school for the training of pilot-aviators, where they will be trained to act in conjunction with each other.

(2) A series of aerial centres, at each of which will be stationed aeroplane regiments, these regiments being sufficient in number to absorb the existing three hundred pilots, and each regiment being immediately mobilisable.

M. Millerand's plan practically embraces the latter point of organisation, while Colonel Seely's English

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scheme has something similar to the first portion. It is curious to note how close Captain Félix is to actual practice. He has the gift of intelligent anticipation.

He continues to argue that not only should aviation form the basis of a separate independent arm, but that it should provide a career for the soldier. Heretofore, almost without exception, it has been held that the *personnel* for this arm should be drawn temporarily from other branches of the Service, returning after a fixed period to their original corps. The question of nerve has largely dominated this decision. Also, it is the only way in which satisfactorily to use the existing material. Those soldiers who have learned to fly must be employed as aviators, that their work at an early stage of the science may not be wasted. But it is equally clear that aviation cannot be allowed to rob other arms of their most efficient officers for more than a limited period. And, to follow Captain Félix, aviation should produce its own officers, both by direct entry and, at present, by selection, these officers to remain permanently on the aerial establishment. He says, "The aviator, like the infantryman and the cavalryman, the gunner and the sapper, ought to be a specialist in his arm." This is undoubtedly the ultimate end of the Service.

There is little doubt that ere many years have drifted swiftly by aviation will form an adequate career for an officer. But to-day circumstances prevent us from adopting such an ambitious plan of formation. Tentative and hesitating, the civilians who prepare the defences of the country are afraid of making mistakes, and refuse to commit themselves to anything definite. The man who is afraid of making mistakes never makes a great success. The middle course is rarely the best course.

Captain Félix lays stress on the fact that there will be different types of aeroplane *escadrilles* (to adopt the French term). Just as we have in artillery garrison batteries and field batteries, so shall we have in military aviation aeroplane *escadrilles* for staff work, for cavalry, for artillery, and for fortified places; later, possibly *escadrilles* specially formed for offensive purposes.

He suggests that aeroplane regiments should be commanded by officers who have flown, but who will not fly after taking up a command. Continual practice and instruction would be carried out, aerodrome flights, cross-country journeys, technical lectures, assembling and dissembling aeroplanes, flights during manœuvres and in conjunction with other arms of the Service. All regiments or *escadrilles* shall manœuvre under the command of the general officer under whom it will serve in time of war. This principle has been an ideal in England during the last twenty-five years, and we are but little nearer it. The Expeditionary Force, so far as it exists, is certainly under the general officer who would probably take it into action, but in actuality the army corps in question is only a skeleton under peace conditions. One does not alter conditions by altering names.

Another feverish element has entered into the life of nations. For half a century and more that section of human kind labelled by themselves "civilised" has strenuously built and rebuilt navies of steel. Each successive year has brought some new discovery, some new idea, and new ships have had to be constructed. The men of science have used their great talents in the furtherance of the plans of a sort of universal mutual destruction society. And millions have been spent on a floating wall of steel that might have been spent on—well, anything the latest Socialist cares about. And now at the beginning of the second decade of the twentieth century we are starting a new rivalry, a new war of brains, for the mastery of the air. Men work and men die in the interests of scientific war, and so the tale goes on until the world finds a new amusement. And why not?

The Royal Flying Corps.

Lieut. and Quartermaster W. J. D. Pryce, late Garrison Sergt.-Major, has been posted to the Military Wing, Royal Flying Corps.

Lieut. Walter Lawrence, 7th Batt., the Essex Regiment (Territorial), has been appointed on probation to the Royal Flying Corps (Military Wing).—W. E. de B. W.

French Military Aviation.

At the opening of the new military aeronautic landing ground at Bar-le-Duc by M. Poincaré, the Cross of the Legion of Honour was bestowed on Lieut.-aviator Remy. This is a timely reward for this officer's devotion to duty and to military aviation.

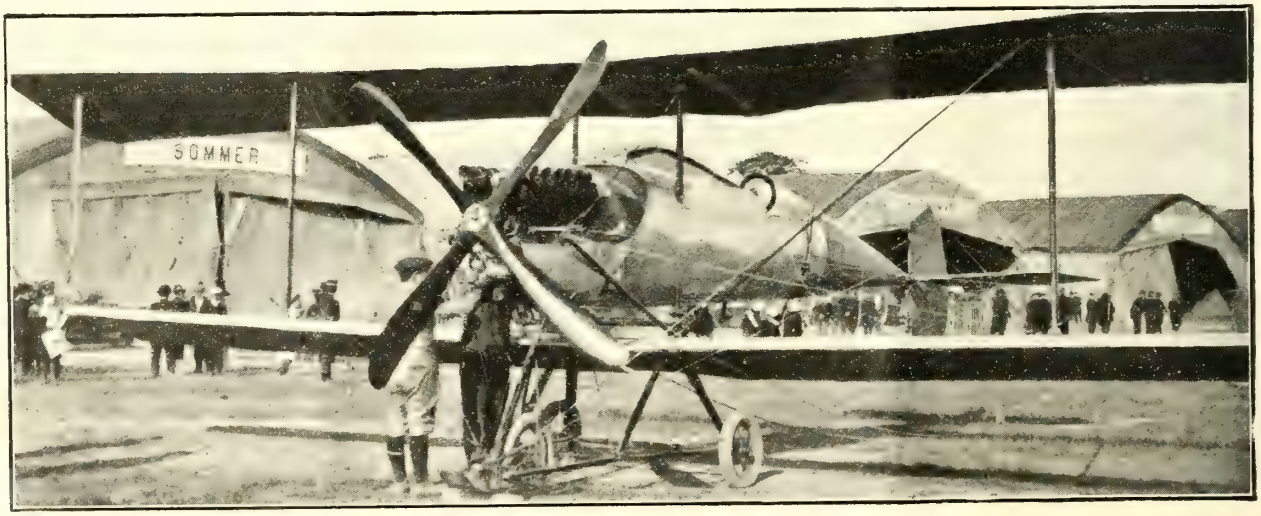
Lieut.-aviators de Bellemois, Sylvestre, and de la Morlaye continued and, I believe, concluded their long aerial tour in company on July 2nd. They left Chalons at 4.45 p.m., and reached Verdun at 5.35 p.m. They have thus flown over 1,000 kilometres *en escadrille*.

Also on July 2nd Lieut.-aviator Marlin flew his Hanriot monoplane back to Reims from Bar-le-Duc.

Early last week General Boëlle, commanding 4th Army Corps, accompanied Lieut.-aviator de Gensac as passenger on a 50 h.p. Farman. He expressed his satisfaction and belief in the great possibilities of aviation.

Lieut.-aviator Schlumberger concluded a long aerial tour on July 3rd. On a Deperdussin monoplane he visited by way of the air Mézières, Verdun, Toul, Epinal, Nancy, Belfort, and, finally, Reims, where he is stationed.

Lieut.-aviator Marlin, following the general example, flew away for a short aerial tour on Friday. He has one of the



The Military Bréguet with a 12-cylinder 90-h.p. Renault, which will probably be seen in the Military Competition.

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latest Hanriot machines. He left Reims and flew to Mézières, ninety kilometres away. Later in the same day he returned.

Lieut.-aviator de Briey, 2nd Colonial Infantry, was rather seriously injured on July 6th. He was leaving Villacoublay with the intention of flying to the eastern frontier, when his machine came to the ground from the height of several hundred feet. The pilot was severely cut about the face and badly shaken. He is at present in hospital at Versailles, and is progressing favourably. Little is known as to the cause of the accident, but it is presumed that he banked too sharply whilst still in the backwash of another machine.—W. E. de B. W.

German Military Aviation.

The Ministry of War has ordered a new Parseval dirigible which under the number *P.4.* will be stationed with *P.3.* at Koenigsberg. Its length is 90 metres, with a capacity of 10,000 cubic metres.

The preliminary regulations for the military aeroplane competition which is to be held in the spring of next year have been issued by the Ministry of War. They are, briefly, as follows :—

It is necessary that (1) both aeroplane and engine shall be of German construction; (2) each shall be two seated, a passenger must be carried; (3) a weight of 200 kgs. shall be carried in addition to the passenger; (4) the pilot shall be able to start his aeroplane unaided; (5) the minimum speed against a wind of 10 metres a second shall be 70 kilometres an hour. (This implies a mean speed of 110 km. an hour in a perfect calm.)

Each aeroplane is to be capable of landing in a ploughed field and of rising again without exterior aid.—W. E. de B. W.

Russian Military Aviation.

A special Russian mission is at present in France inspecting different types of aeroplanes suitable for service in the Imperial Russian Army. The members of this mission are General Gelinski, Chief of the General Staff; Admiral H. S. H. Prince Lieven, Chief of the Naval General Staff; General Thyckevitch, Director of Aeronautics; Col. Count Ignatieff, Col. Skalon, and Captain Pautchouldzeff. Accompanying in their visits to Villacoublay and Buc were General Manoury, Military Governor of Paris; and Col. Hirschauer, Ins.-Gen. of Aeronautics. They arrived at Villacoublay at 10.30 a.m., and inspected twenty-three aeroplanes in line. Later Labouret on the Astra biplane, Gobé on the Nieuport, and Morane on the Morane-Saulnier all made flights. Several soldiers also made ascents. In the afternoon the mission visited Buc, where they went over the R.E.P. and Farman sheds, afterwards watching several pilots in the air.—W. E. de B. W.

Continental Notes.

M. Sommer intends shortly to test a "hydro-aerobus" on the lake of Geneva. It is a biplane with a 100 h.p. engine. The two large floats have been constructed by Tellier. It is intended to fly with six passengers.

During the week Mr. Grahame-White and Mr. Noel both made trial flights to Buc on the former's three-seater 70-h.p. Gnôme Farman. This machine is intended for hydro-aeroplaning.

The Grand Prix of 5,000 francs offered by the municipality of Oran for the first flight across the mountain separating that town from the Mediterranean has been won by Serviès, who took his 50 h.p. Gnôme Deperdussin monoplane over at a height of over 2,000 metres.

One of the rewards offered for man-power flight—the Prix Peugeot of £40—has been won by M. Poulain on a cycloplane of his own design. It was essential for success that the competitor should surmount in flight two cords placed one metre apart at a height of four inches from the ground. M. Poulain's first flight was 11 ft. 9 in. in length, and his second 10 ft. 9 in. M. Poulain is an old racing cyclist of the first class, and was reported as being killed and burnt in a monoplane of his own build last year.

M. Barra continues to make excellent flights on the Curtiss hydro-aeroplane. On July 4th he left Juan les Pins at 6 a.m., and landed at Hyères at 7.30 a.m. for petrol. Leaving at 8.30 a.m., he reached Marseilles at 9.15 a.m., having covered a distance of 265 kiloms. over the sea. The following morning he left for Lyon, intending to pass Avignon and Valence. Unfortunately he fell into the water only 12 kilometres from his starting point. He was uninjured, and his aeroplane was only slightly damaged.

On Friday last M. Sadi Lecointe achieved the ambition of all good French aviators—he flew over Paris. He left Issy-les-Moulineaux on a 60-h.p. Anzani Blériot, and was away fifty minutes, during which time he rose to a height of 2,000 metres. On the return journey he stopped his engine when close to the Eiffel Tower, and glided to the ground at Issy.

H.I.H. the Grand Duke Alexander and his suite visited Chalons on Friday and inspected various pilots flying Henry Farman biplanes, and the *Escadrille* from Mailly, all the aeroplanes of which are Maurice Farman biplanes. His Imperial Highness was pleased to express his satisfaction.

There are those whose names are for a space known to all by reason of the exploits of their owners. But memories fail and reputations fade, and one thinks no more of those who once were great, because it is "Out of sight out of mind." Some there are who perhaps unwillingly remain in the public gaze because from time to time the Fates are kind and they are to do something of note. Of such is Legagneux. One of the first to take up aviation in the days when the insurance companies were cold and the undertakers busy, and yet he has not tired or become stale. On July 4th, at Compiègne, he broke the speed record with one passenger on his Zens monoplane (80 h.p. Gnôme). He flew 150 kilometres in 1 hr. 13 min. 4 secs., and covered 124 kilometres 385 metres (77¼ miles) in one hour.

Mr. James Valentine, who left Hendon a week or two ago on his Bristol and was held up at Wissant by engine trouble, continued his journey on Saturday, going from Abbeville to Issy-les-Moulineaux in the early morning.

Colonel Seely and Accidents in France.

When Col. Seely stated some time ago in the House that he knew of a certain French school where 60,000 kms. had been covered "without an accident of any kind," it was stated in certain semi-official circles that the school to which he referred was the Maurice Farman School at Buc. Admitting freely that accidents at the said school are by no means unduly frequent, it was hard to believe that such a distance was covered without accident of any kind, and in support of this disbelief a well-known British aviator, who has recently been paying a visit to France, stated definitely a few days ago that on one day when he happened to visit the Buc Aerodrome he saw one French officer smash up two Maurice Farman biplanes in the day, hurting himself rather painfully on the second occasion, through sheer bad flying.



The new Flanders monoplane which is at present undergoing tests at Brooklands before delivery to the Royal Flying Corps.

The Stonehenge Accident.

It is with great regret that one has to record the deaths of Captain E. B. Loraine, Grenadier Guards (seconded for duty with the Royal Flying Corps), and Staff-Sergeant Wilson, Royal Flying Corps, who were killed while flying a Nieuport monoplane on Friday last, July 5th.



The late Captain Loraine.

It appears that after a trial flight with Corporal Ridd as passenger, Captain Loraine took up Staff-Sergeant Wilson and flew to Shrewton. Coming back they reached Stonehenge and then turned sharply to the left to reach Lark Hill. The machine was seen to bank over for the turn, drop, and then dive. At once Lieut. Fox flew over to the place where the machine had fallen. Both the victims were alive, and having extracted them from the wreck and made them as comfortable as possible, he flew back for assistance. Captain Brooke-Popham, commanding the Lark Hill Squadron, also flew over as soon as he could get his machine going. Sergeant Wilson died a few minutes afterwards, his neck being broken. Captain Loraine was alive and conscious. He was taken to Bulford Military Hospital, where he died ten minutes after his admission. His right thigh and left ankle were broken. It was at first thought that his skull was fractured, but later this was found not to be so, and his death was due to general shock to the system.

The Cause of the Accident.

It seems fairly clear that the accident was caused by over-banking, but so skilful a pilot as Captain Loraine was scarcely likely to make such a mistake from lack of knowledge. The mistake was more probably primarily due to the custom, which cannot be sufficiently condemned, of allowing pilots to fly a variety of different machines, many of which have entirely different controls. In the Nieuport the warping of the wings is done with the feet, and the steering by lever. Now the evil of this is that, up to a point, the lateral stabilising can be done with the lever operating the rudder, as in the usual system. Thus, in turning to the left the lever is pushed to the left, the machine goes round to the left, and the right wing banks up. If it banks too far, a sudden movement of the lever, and rudder, to the right will swing the machine suddenly to the right and bring it up to an even keel; but if once a side-slip to the left has started, the rudder would have no effect unless it were pushed to the left. Even the best of pilots, if used to flying machines with the ordinary lever warp and rudder-bar, might make a mistake when flying a Nieuport and try to steer to the left with his feet thus increasing the banking up of the right wing, and might try to warp the left wing up with the lever, so preventing the rudder from acting at all. If this happened, the machine would, in time, get its nose down and dive, but it would by then have reached a very big speed, and probably be slow in getting its nose up again.

There has long been an opinion in France that if a Nieuport gets past a certain angle in diving it will not come back at all. Though this has never been proved, it seems possibly true, for one may assume that the curves of the body aft are designed to give the correct streamline at the designed speed of the machine. Now, if this speed be, say, 75 miles per hour, and the speed in diving be increased to, say, 120 miles per hour, it seems quite possible that the blunt entry of the machine may, at that speed, set up eddies which only meet at a point some distance behind the tail and elevator, for the Nieuport body is very short. If this were so, it would mean that the elevator and rudder were working in the eddies left by the blunt entry, and so would be slower to act, or it is even possible that the body and wings might set up such eddies that the elevator would not work at all, and so the machine would never come up, if she once dived. The same thing has been said of certain British monoplanes with short bodies, which are very sensitive to the controls at their proper flying speed, but are alleged to be very slow in coming up if dived too steeply. The point is one which needs to have careful research work devoted to it. But the two chief points are that pilots should fly their own machines and no others, except under special circumstances, and that *all* controls should be standardised. In time it will even be better to standardise machines as well. There are bound to be various types for various purposes, just as there are various types of guns, but each type should itself be standardised as soon as possible.

Possibly a contributory cause of the accident was the strange downward remou which is known to exist over and about Fargo Wood and Stonehenge. This, combined with a steeply banked turn, and possibly a momentary mistake in the use of the controls on a machine which is known to be tricky in handling, would account for everything, especially as it is definitely established that all control wires were in working order after the accident.

Captain Eustace Broke Loraine was killed exactly thirteen years after he joined the Army, having been gazetted second lieutenant in the Grenadier Guards on July 5th, 1899. He was born in September, 1879, and was the elder son of Rear-Admiral Sir Lambton Loraine, Bt., and Lady Loraine, daughter of Captain Charles Acton Broke, R.E. He is succeeded as heir to the baronetcy by his brother, Percy Lyham, a Secretary in the Diplomatic Service. Captain Loraine's great grandfather was Sir Philip Broke, who on June 1st, 1813, as captain of the *Shannon* captured the U.S. frigate *Chesapeake*. He was promoted lieutenant in May, 1900, and served in the South African war from April, 1900, to May, 1902, receiving the Queen's medal with three clasps and the King's medal with two clasps. From July, 1905, to September, 1906, Lieutenant Loraine was adjutant, Grenadier Guards, and was promoted captain in July, 1907. In October, 1908, he was seconded for duty with the West African Frontier Force.

On November 7th last Captain Loraine was given his pilot's certificate (No. 154) on a Valkyrie, and he afterwards flew the Deperdussin and Blériot at the Ewen School. He was appointed to the Military Wing of the Royal Flying Corps early last month, and since then he has flown regularly over Salisbury Plain, and at Farnborough, using practically every type of machine in the possession of the Flying Corps, his most notable flight being from the Plain to Farnborough on the Deperdussin in a bad wind on the occasion of the King's visit to the Royal Aircraft Factory. He was generally recognised as one of the finest fliers in the Army, and though one could not call him a reckless flier, he was certainly daring. He will be greatly missed by many friends both in and out of the Services, and to his family one ventures to extend the deepest sympathy.



The late Staff-Sergt. Wilson.

Staff-Sergeant R. H. V. Wilson was the second non-commissioned officer to take his certificate, which was passed on June 18 (No. 232). Prior to the formation of the Royal Flying Corps he was in the Royal Engineers. He was a good soldier, a smart mechanic, and he gave every promise of being an excellent flier.

The Vaniman Airship Disaster.

As was expected by a good many people, the Vaniman Trans-atlantic airship *Akron* has come to grief, the machine exploding in the air on Tuesday of last week. Like most American products, the machine was a peculiar mixture of clever ideas and foolish execution. The cause of the ultimate explosion was obviously one of two things—either an escape of gas upwards from the enormous petrol tanks which formed the floor of the car, or an escape of gas downwards from the balloon owing to the heat of the sun expanding the gas and forcing it out of the gasbag down into the car.

This machine was built very much on the general scheme of

the one which was shown at Olympia a couple of years ago, and it will be remembered that the car of that machine was a semi-enclosed affair with the balloon above and the petrol tanks underneath, so that in the event of gas escaping from either it could collect in the car and go through all the necessary variations of quantities until it formed a proper explosive mixture, which could then be ignited by a spark from the ignition or even by a whiff of gas drifting underneath the car to the exhausts of the motors. There was also a dynamo inside the car for the wireless apparatus and lighting, and a spark from the brushes of this dynamo might equally cause an explosion.

Poor little Vaniman was one of those strange human products of the United States who seem to be able to command unlimited financial support in that extraordinary country. He had a certain amount of rather unpractical cleverness, and an unlimited confidence in himself which made him singularly convincing to anybody who did not know rather more about the subject than he did. At times he produced really good ideas, and it is quite possible that with a strong man over him he might, if he had lived, have done really useful work.

Miss Quimby's Accident.

It now seems fairly well established that what happened in the accident which caused the deaths of Miss Quimby and her passenger, Mr. W. A. P. Willard, was that they were gliding down steeply from 1,000 feet or so, on their way back from the Boston Light, when the machine dived into a hole in the air, with the result that the tail went up suddenly and they were both pitched out. It is reported that when relieved of their weight the Blériot picked up its own gliding angle and came down in the water without much damage. Miss Quimby and Mr. Willard must have hit the water quite hard enough to kill them, without considering that the water was shallow where they struck it. Their bodies were recovered later on.

Flying in Manchester.

The flying in Manchester during the last two week-ends by Lieut. Parke, R.N., on the Aero at Fallowfield has created locally quite a large amount of interest in aviation, and the question of starting an aerodrome in the neighbourhood of Manchester is being seriously considered. There has been a so-called aerodrome at Trafford Park for some considerable time, but apparently it is unsuitable for flying, as neither those responsible for the *Daily Mail* flights nor those arranging for Lieut. Parke's flights would use the ground. The International Correspondence Schools also thought of making Trafford Park a landing place for Mr. Slack, but eventually decided that he should land at Didsbury instead. The Manchester Aero Club, which, like many others, started with a great flourish a couple of years ago, has apparently fallen into a state of innocuous desuetude, and so far as one can gather the only interest the club has taken in aviation lately is to object to flights being made at Fallowfield, reporting that the ground there was not suitable for a starting or landing place. It certainly seems peculiar that the only thing an aero club, which is supposed to possess an aerodrome, can do is to attempt to stop flying elsewhere. It is to be hoped that the newly-born enthusiasm will lead to a more active policy on the part of the said club.

The "Daily Mail" Advertisement Tours.

The *Daily Mail* "All-Foreign Advertisement Tour" having more or less petered out for lack of pilots, that enterprising paper has now been obliged to fall back on mere British pilots, with the result that Mr. B. C. Hucks on his 70-h.p. Blériot made a brilliant flight from London to Birmingham, covering the 110 miles in about 87 minutes. He left Hendon at 2.18 p.m., and landed at Tyseley, to the south-west of Birmingham, at 3.45 p.m. He was forced to descend at Tyseley owing to valve trouble in the 70-h.p. Gnôme, an engine which seems to suffer much in this way. After his arrival there was much rain, but he managed to give an exhibition flight in the evening.

The I.C.S. Educational Tour.

Writing on Monday concerning Mr. Slack's progress in the Midlands, Mr. Seymour Norton, referring to the cause of Mr. Slack's delay at Birmingham, says:—"In the first place, we had not a spare skid in England for the machine, and so had to telegraph to Levallois-Perret for a new one, which did not arrive in London ti'l Thursday afternoon, though sent off at once. In the meantime, however, the Wolseley Tool and Motor-Car Company had nobly come to the assistance of our aviator and had straightened out the skid and remade the damaged steel springs, but the weather was so bad that flight was impossible.

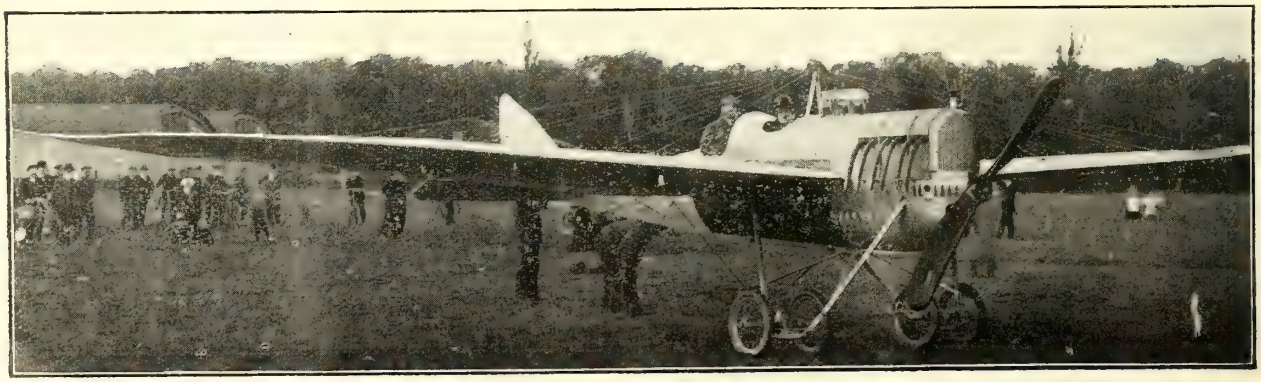
"On Thursday evening, however, conditions improved, and Slack flew from the Birmingham Corporation Playing Fields, Castle Bromwich, to the Stone Flat, Stafford. The distance, measured from the Ordnance map, is 26½ miles, and Slack covered this distance in 24½ minutes, rising at 6.12 and alighting at 6.36½ p.m. The weather was very misty, necessitating a low flight. At Stafford he was given a most enthusiastic welcome by the Mayor and Corporation and many local notabilities. As the Assizes were on the town was full, and immense interest was taken in our machine.

"On Friday the weather was gusty and unfavourable, and, although the machine was brought out preparatory to a start in the evening, there was such a heavy mist over the country to the northward that it was decided not to attempt the flight, more especially as everybody in Stafford wanted Slack to stay over Saturday on account of a pageant that was being held.

"On Saturday evening, after having been an object of interest to thousands of people, Slack flew to Manchester, alighting north of Didsbury, not far from where Paulhan descended on the first London to Manchester flight. The distance as the crow flies is about 43 miles, and this was covered in 43 minutes, the weather being gusty and misty. As this portion of the journey was made across the 'Five Towns,' the aviator had to fly at a considerable height.

Mr. Slack sends word to The Aeroplane by Mr. Seymour Norton that his flight from Hendon to Bedford was only the second time he had ever been outside the aerodrome. It was also only the second time he had flown that machine, and it was only the eighth flight he had made in a 50 h.p. Blériot. These facts are distinctly interesting, as they show that Mr. Slack is naturally a flier of the best class.

Mr. Slack further says that in his flight from Ashby-de-la-Zouch to Birmingham, he was brought down at Atherstone by a thunderstorm. He saw the storm some miles ahead, and endeavoured to pass round it, but he was unable to escape it, and was dropped something like 400 ft. straight away. Mr. Slack particularly points out how much he owes to wearing a belt to hold him into the machine, for he says that on a number of occasions he would certainly have been thrown, if not out of the machine, at any rate into such a position that he could not work his controls properly if he had not been held in his seat by the belt.



The Mars monoplane (100-h.p. Mercédès engine) with Lieut. Bier in the pilot's seat. A similar machine is to take part in the Military Aeroplane Competition.

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A Method of Launching Aeroplanes from Battleships

By C. W. P.

The practicability of utilising aeroplanes in conjunction with battleships has long had the attention of the authorities, and various experiments have been carried out by private enterprise.

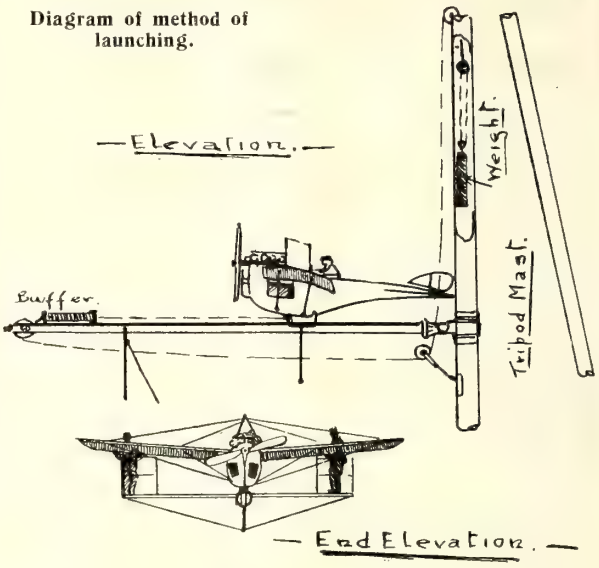
It has been suggested that if aeroplanes are to be used with the fleet at sea, they must either have the faculty of rising from and alighting on the surface of the surrounding water, or must run straight off the ship itself.

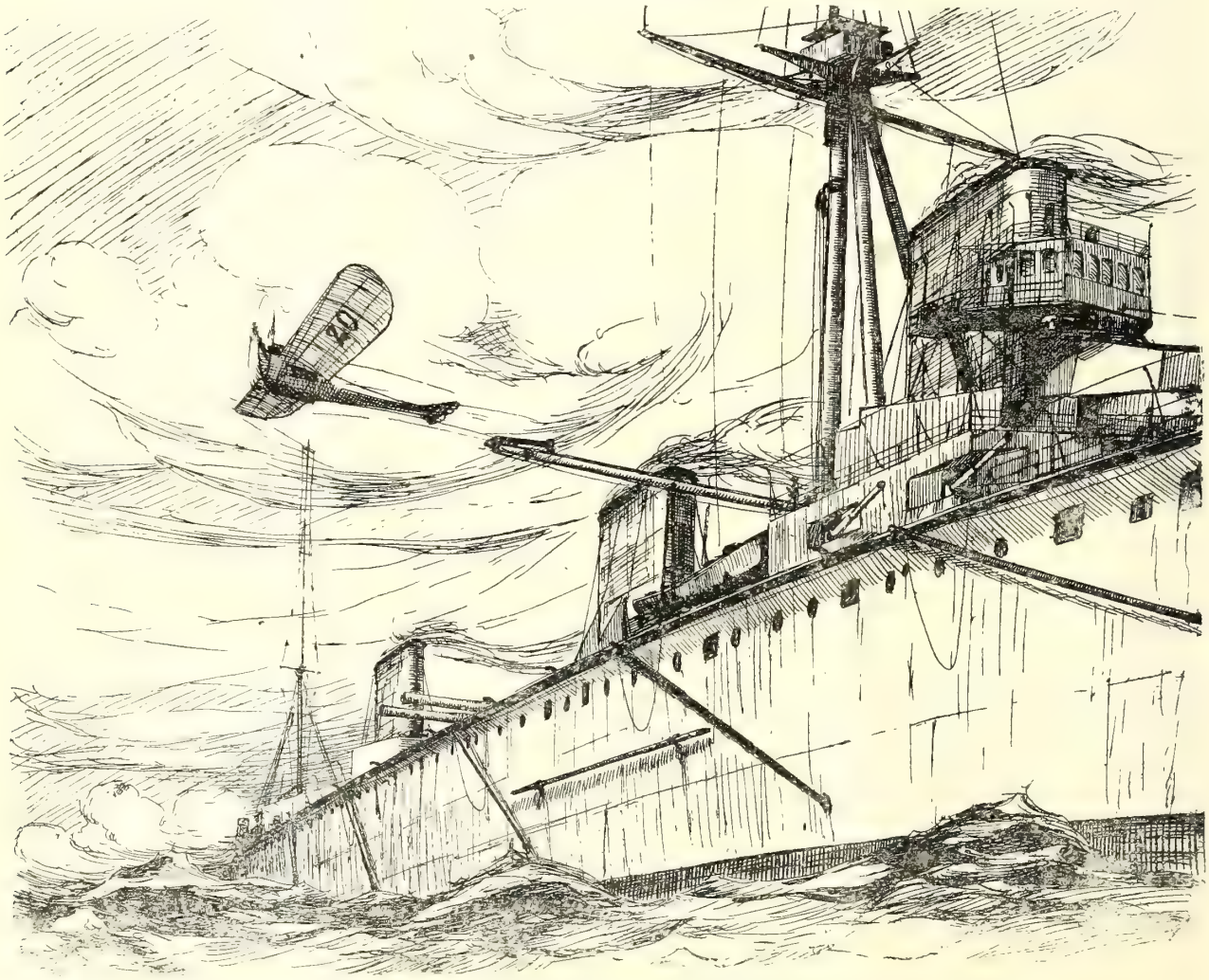
Now it has been found that both these methods are impracticable. In the first case, the aeroplane fitted with hydroplanes could not be used in any really rough sea, and in the second case, owing to the impossibility of having a flat obstructive structure erected on the ship (as in the case of an American warship), this alternative is out of the question; so the following idea is brought forward.

It will be remembered how the Wright brothers first used an apparatus for launching into the air. They, of course, used a single rail, along which the biplane was pulled by means of a cord running over a pulley at the end, thence back and up a tower, where it was attached to a large weight which was released at the right moment, thus forcing the machine along with a good starting velocity. Now it will be seen that this corresponding rail is fitted to the ship's boat derrick, which is let down into a prop, pointing horizontally out from the ship. The aeroplane scout is then projected along this rail in the same manner, the weight now falling inside the tubular mast.

On returning to the ship with information, of course, the aeroplane, built so that it will float with a certain amount of

Diagram of method of launching.





The writer of the article pictures the launching of a naval scout by the method he suggests.

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stability, would glide down into the water as near as possible, so that it could be picked up by the same derrick, none the worse for its bath.

If the wings were much damaged by alighting in a heavy sea, new ones could be very soon fitted at quite a nominal cost (compared with the cost of a 12 in. shell).

The advantage of this system over another method which has been suggested, by which the aeroplane was to run down a long wire rope, and kept up laterally by two more wire ropes, is that the boat boom can be trained out either side of the ship, so that the launch could always be made up into the wind (a very important feature).

As to the design of the aeroplane itself, it would have to be a far better job than is commonly seen to-day. This would come automatically in the making of large numbers, which could be standardised. Also, it is hoped that they will be designed by engineers, instead of by navigators, as in the case of a certain airship.

Firstly, they must be strong and small. The engine should be designed for economy of oil and petrol consumption, and not sacrificed to the god "h.p. per lb.," as in the rotary.

They must also be able to withstand hard handling, and be fool-proof.

Owing to their being shot off at their natural flying speed, only a very small camber of wing will be necessary (*i.e.*, that necessary for high velocity flight). Thus they can be made highly efficient and approach the ideal.

Land machines at present have to be able to lift at a much slower speed than their highest, owing to getting off the ground, hence their comparatively low efficiency.

As to armament, there is no reason why a small Q.F. should not be carried, to destroy airships or fight other aeroplanes.

The Impending Retirement of Mr. Hubbard.

The following letter has been sent to the members of the Aeronautical Society by Major-General R. M. Ruck, Chairman of the Council. It is to be hoped that it will meet with generous response, for Mr. Hubbard's services to the Society at its most critical period cannot be valued too highly :—

"It is proposed to present Mr. Hubbard, on his retirement in August, with a mark of appreciation of the invaluable services that he has rendered to the Society during the last four years. Had it not been for his unwavering zeal, not only as Secretary, but also in an honorary capacity as joint Editor of the Journal and as Librarian, it is certain that the position of the Society would be materially different from what it is to-day.

"The fact that the remuneration attaching to the post of Secretary is so small as to render the position virtually an honorary one, serves but to emphasise the lasting indebtedness of the Society to Mr. Hubbard, and the Council hopes that every member will express his personal appreciation of it by subscribing to the fund.

"Subscriptions (from 1s. upwards) should be sent to Mr. B. G Cooper, c/o Aeronautical Society, 11, Adam Street, Adelphi."

The Aeronautical Society.

Wilbur Wright Memorial Fund.—The following is a list of donations received :—

Amount previously acknowledged	£269	5	6
Messrs. Short Bros.	50	0	0
The Hon. Maurice Egerton	20	0	0
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W. H. Dines, Esq., ...	1	0	0
H. D. Cutler, Esq.	0	10	6
J. Green, Esq.	0	5	0

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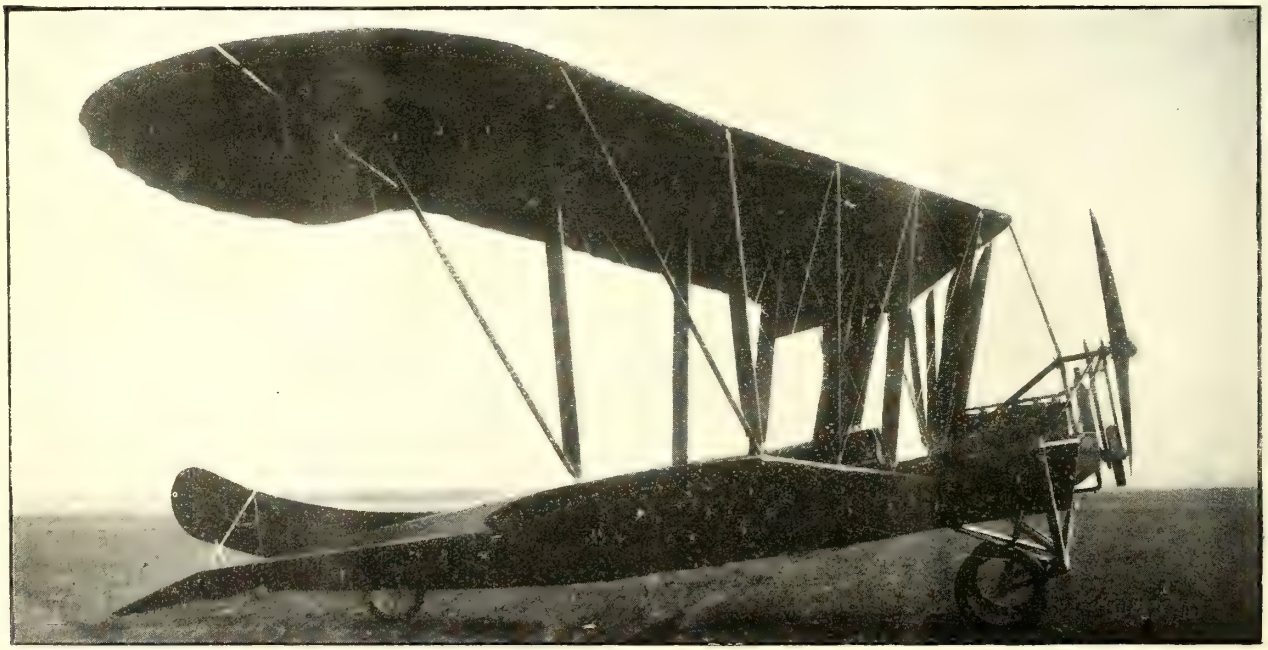
The Uses of Staggered Planes.

Several readers of The Aeroplane have written asking for an explanation of the use of staggered planes in biplanes, that is to say planes in which the upper one, instead of being vertically above the lower, is either in front of or behind it.

In the use of staggered planes with the upper plane forward, there are two very distinct advantages. Firstly, it brings the centre of pressure of the whole machine forward, and, in order to make the machine balance, it is necessary to bring the centre of gravity so far forward that in a tractor screw machine the engine is right out in front of the lower plane, and the pilot and observer have a clear view down over the edge.

This advantage, of course, does not exist in the engine-behind type, but in both types there is the advantage that when it is necessary to land on very rough ground, where rolling would probably upset the machine, it is possible, owing to the large horizontal surface exposed, to "pancake" with comparative safety, for in the ordinary type of machine the surface available for a parachute effect is practically that of the lower plane only, the upper plane being "blanketed," whereas with staggered planes both surfaces take effect.

In the few machines in which the rear plane is staggered behind the lower one, the idea is simply to obtain greater lifting efficiency, because it is the opinion of the designers that the air deflected downwards by the upper plane of a biplane interferes with the lifting effect of the top surface of the lower plane, and, therefore, putting the upper plane back is supposed to give the lower plane a lift free from interference by the upper.



The Lohner "Arrow-Plane"—Naval Type—with low body and raised tractor, floats being fitted in place of the chassis for use on water. In the Military Type the fuselage is higher up between the planes.

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Ladies' Day at Hendon.

As usual, there was magnificent flying at Hendon on Saturday, and, as usual, there was wind, so the events for women aviators were cancelled, but it was essentially a "Ladies' Day" all the same, for the aerodrome was full of assorted femininity, the Women's Aerial League—as enthusiastic and as vague in their ideas on aviation as ever—being there in full force, besides assorted Girl Guides, Flapper Scouts, and some strange young women with Stetson hats and with red crosses on their arms—apparently a kind of St. Jane's Ambulance Corps—of whom an irreverent sailorman remarked, "If I had a smash and one of those came to help I'd simply ask to be left to die in peace." However, they all added to the entertainment.

The first event, a cross-country race to Elstree and back twice, was won by Mr. Turner on the ancient Howard Wright, with Mr. Hamel second, but it was declared void because M. Verrier and Mr. Travers were flagged down by No. 4 pylon-keeper, though No. 4 pylon had nothing to do with the race, the course being round Nos. 1, 2, and 3, and then out into the country. No blame to the pylon-keeper, who merely acted on wrongly given instructions. Very hard luck on Mr. Turner, who had a rough journey, and came back looking as if he had been carrying the machine, so hard had he worked.

Afterwards followed two speed handicaps, which resulted thus:

1st heat.—(1) Mr. Hamel (scratch), 8 m. 37 s.
(2) Mr. Sabelli (1-36), 8 m. 46 3-5 s.
(3) Mr. Travers (2-6), 8 m. 47 s.
2nd heat.—(1) Mr. Turner (2-32), 9 m. 1 s.
(2) M. Verrier (scratch), 9 m. 34 s.
Final.—(1) Mr. Turner (3-54), 13 m. 28 s.
(2) Mr. Sabelli (2-24), 13 m. 29 4-5 s.
(3) Mr. Hamel (scratch), 13 m. 32 s.

The heats were four laps, and the final six laps.

The second race, later in the evening, was over the same distance, but with only four laps in the final. In this race M. Verrier carried Mrs. Stocks as passenger, and Mr. Turner carried Mrs. Richard Gates. The results were thusly:—

1st heat.—(1) M. Verrier (scratch), 8 m. 22 s.
(2) Mr. Travers (1-20), 8 m. 25 4-5 s.
(3) Mr. Sabelli (0-40), 8 m. 33 1-5 s.
2nd heat.—(1) Mr. Turner (3-4), 9 m. 11 4-5 s.
(2) Mr. Hamel (scratch), 9 m. 33 1-5 s.
(3) Mr. Desoutter (1-56), 9 m. 59 s.
Final.—(1) M. Verrier (0-52), 9 m. 11 s.
(2) Mr. Turner (3-4), 9 m. 15 2-5 s.
(3) Mr. Travers (2-12), 9 m. 27 s.
(4) Mr. Hamel (scratch), 9 m. 44 2-5 s.

In between races, Mr. Hamel, on his trusty 50-h.p. Blériot, did some really fine exhibition work. One fair admirer described him as "flying like an angel," whereupon the matter-of-fact male person retorted, "Yes! And if he goes on playing tricks like that, he'll soon be flying as an angel." Really, Mr. Hamel might have some consideration for the feelings of his friends. Incidentally, while he adheres strictly to his declaration not to fly over the crowd, he occasionally forgets that the effects of centrifugal force and of gravity are much the same, and that missing the crowd by a few feet horizontally is just as dangerous as scraping their heads vertically. Mr. Hamel is made of too good stuff to waste himself as a mere circus performer, and he ought to realise that when a cavalryman's horse kills him on manœuvres, one regards him as a soldier killed in action, and he is buried with the customary honours, but that when a circus rider trips and breaks his neck the utmost epitaph he gets is a casual "poor fool."—There is a difference.

Talking of dangerous flying, someone ought to speak kindly, but firmly, to M. Verrier about his trick of doing a gliding "pancake" over the sheds and the crowd. On at least one occasion on Saturday, if his engine had not picked up at the right moment, his tail, at any rate, would have alighted inside the railings among the crowd, and if a gust had just dropped him at that instant, the whole machine would have been among the cars and people.

And here let me explain that I have no objection to a pilot breaking his neck if he wants to do so, and half a dozen people killed by an aeroplane are no worse than half a dozen people killed by motor 'busses, or railway trains, or drowned while bathing or boating. But we want to avoid suicide and manslaughter at present, while the sport is young. It conveys a wrong impression, it looks bad, and it isn't done in the best set.

During the evening Mrs. C. de Beauvoir Stocks flew several circuits on the Grahame-White School Anzani-Blériot, handling the machine quite neatly, but very wisely she did not attempt any fancy banking or diving. She was presented with a handsome trophy as a reward for being the first woman to fly at a Hendon aviation meeting.

A welcome feature of the evening was the appearance of Mr. H. Barber on the Valkyrie racer on which he has flown so well on so many big flights. It has been bought for hydro-aeroplane experiments, and the purchaser wanted to make sure it could really fly, so Mr. Barber consented to demonstrate its ability. Also he showed that he has lost none of his old skill. It was a great pity he had to come down to allow a race to start, as his exhibitions are always worth watching, his flying being graceful, skilful, and impressive, without scaring people.

A word of praise is due to Mr. Sabelli, who flew his little British-built 35-h.p. Deperdussin splendidly, and won his first prize in competition, a well deserved "pot." Young Marcel Desoutter also flew excellently on the Grahame-White 35-h.p. Blériot. Both these pilots are worthy of a trial on big-powered machines. Mr. J. L. Travers did good work on one of the old G.-W. school "'busses," and one hopes to see him on something modern ere long, for he is really quite first-class.

Taking it all round, it was a very entertaining day, and the spread of enthusiasm among the people was again proved by the number of the original 10,000 or so who hung on till nearly dark to see all the flying they could.—C. G. G

The First Hydro-Aeroplane Across.

Mr. Claude Grahame-White crossed the Channel on a Farman hydro-aeroplane on Saturday last, accompanied by his mechanic, Mr. Carr. This is the first time the Channel has been crossed by a hydro-aeroplane, and it is also the first time Mr. Grahame-White has flown the Channel.

Having taken several days to fly from Paris to Boulogne, owing to trouble with the 70 h.p. Gnôme engine, Mr. Grahame-White changed the wheels for floats on his arrival at Boulogne, and started between 5 and 6 a.m. for Folkestone. On the way across they ran into a thick fog and lost their way; but, nearing the English coast, they ran out of the fog again and found themselves at Dungeness. Here they turned and flew to Folkestone, where they came down in the water about 7.30 a.m. Mrs. Claude Grahame-White crossed in the yacht on which she and Mr. Grahame-White are honeymooning.

In the evening Mr. Grahame-White made several further flights, and then the floats were taken off the machine and wheels put on, and he started for Hendon, but had to come down no less than three times on the way, finally stopping at Sidcup about 7.30 p.m., owing to further valve trouble.

On Monday, Mr. Grahame-White flew on to Hendon *via* Richmond, his concluding glide taking ten minutes.



The Start for the Cross-country Race at Hendon on Saturday. Mr. Turner may be seen as a speck in the sky on the left, on the ground are Messrs. Travers, Verrier and Hamel.

The Week's Work.

MONDAY, July 1st.

Brooklands.—Bristol School, 7 p.m., Mr. Hotchkiss solus, then taking Mr. Merriam as passenger. Latter solus, and then with Lieut. Wilmer. Mr. Lawrence up for ¼ hour at about 300 ft. Mr. Hotchkiss with Capt. Macdonell. Mr. Merriam with Mr. Summerfield, and later with Capt. Macdonell. Mr. Hotchkiss behind Mr. Holyoake, and later behind Lieut. Wilmer.

At Sopwith School, Messrs. Wadham and Herbert did first flight for brevêt in morning. In evening Mr. Sopwith out on new Sopwith-Sigrist biplane, taking several passengers. Mr. Gordon Bell was also out on Burgess-Wright, and Capts. Alston and Powell and Mr. Hedley all out on school Farman.

Martin-Handasyde doing circuits in the evening with Mr. Bell at wheel.

At Deperdussin School in morning Lieut. Reilly out on brevêt machine doing very good straights for half hour. In evening Lieut. Reilly out again doing more excellent straights. Lieut. Porte, R.N., returned from Coulsdon, where he had flown the night before to visit some friends.

Eastchurch.—Commander Samson, R.N., on Henry Farman in early morning and again during evening for speed tests. Capt. Gordon, R.M.L.I., took Henry Farman for climbing test with passenger, doing well over 200 ft. per minute. Lieut. L'Estrange Malone, R.N., out on school machine. Mr. Alec Ogilvie out on N.E.C.-Ogilvie-Wright with Mr. Fowler as passenger, accompanying Henry Farman on climbing expedition, there being very little to chose between them.

Hendon.—At Grahame-White School, in morning, *F.7.* out, with Mr. Travers in charge. Mr. Kershaw doing straights and circuits, Capt. Salmond and Commander Yeats-Brown straights; Baroness Schenk, Mr. Cholmondeley (Lieut.), and Messrs. Wynne and Holscher straights with Mr. Travers. In evening Mr. Turner took up Capt. Salmond for a short passenger flight, to show that it really *was* too gusty for school work.

Work at W. H. Ewen School started at 5 a.m., M. Baumann flying circuits, with right and left turns on the 28-Dep. Mr. Ware ditto on Blériot; Messrs. Edmund, Apcar, H. H. and J. H. James flying straights on Blériot.

At Blériot School, 4 a.m., very good work done between then and 8.15. M. Sacchi 4 straights in good style and M. Teulade flying very evenly. Mr. Gandillon 2 rolls across and back, showing aptitude. At 7.20 M. Aubert went for brevêt, and did the first half in excellent style. So keen on flying that combined flag-wagging abilities of about 20 interested spectators were necessary in order to bring about *atterrissage,* he having by that time done about 8 figure eights and 2 circuits. M. Aubert is one of those fortunate people who have absolutely no personal acquaintance whatever with the term "cold feet," and should make his mark as pilot.

At Deperdussin School, all pupils out doing straights on taxi.

The Plain (R.F.C.).—Capt. Brooke-Popham out on Avro, making 4 flights all told, taking up Lieuts. Ireland, Fergusson, and Thompson. Staff-Sergt. Wilson out on *F.7.*, doing solos. Lieut. Fox made splendid cross-country flight to Bournemouth, Southampton and back, with Lieut. Hartree as passenger. Later Lieut. Fox on *B.E.3,* Capt. Brooke-Popham on Avro, both flying for observation purposes. In evening Capt. Brooke-Popham on Avro with Lieut. Thompson, after which Capt. Burke on *B.E.1.* Lieut. Hartree on *F.7.* doing solos. Lieut. Fox on *B.E.3.* to Whitchurch and back. In morning Capt. Hamilton started from Farnborough on a 60-h.p. Deperdussin, landed through engine trouble, and smashed chassis in landing. Machine brought back by road.

The Plain (Bristol School).—No flying morning. Later Mr. Pizey started by taking Capt. Lucina and Mr. Lywood for tuition flights. Mr. Smith-Barry out with Lieut. Gould, and following were out on monoplanes: Messrs. Greig, Barnwell, Pickles, Bettington, England and Busteed.

TUESDAY, July 2nd.

Brooklands.—Bristol School, 4 a.m., Mr. Hotchkiss to try conditions, but stopped by rain.

At Sopwith School, Mr. Wadham finished brevêt flights, Mr. Herbert did second lot of eights but not height. In evening Mr. Bell out on Burgess-Wright instructing new pupil, Mr. Lane. Mr. Hedley and Capts. Powell and Alston doing straights.

Mr. Spencer doing circuits on his biplane in evening.

Martin Handasyde out with Mr. Bell piloting in evening.

Clonmel.—Mr. Corbett Wilson, arriving from Kilkenny at Powerstown Racecourse to give exhibition flights, flew 30 miles from Jenkinstown in 20 minutes, circled Clonmel at considerable height, but on landing was dropped head first by gust; machine was completely wrecked, chassis, fuselage, and both wings all being broken. Mr. Wilson hit front of machine and his goggles cut his face considerably. Happily, except for slight shock he was otherwise unhurt, and was able to leave hospital after his wounds had been attended to. He now proposes to rebuild the machine locally.

Eastchurch.—Lieut. Spencer Grey, R.N., with Lieut. Sheppard as passenger, out on *T.5.* (hydro-aeroplane), putting in practice among destroyer flotilla in the mouth of Medway.

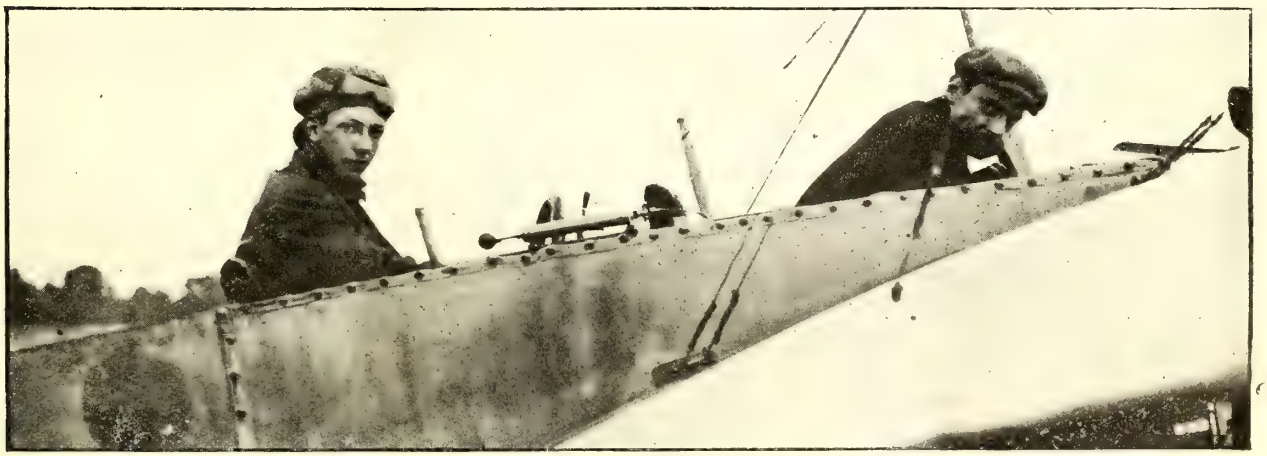
Hendon.—At Deperdussin School, Capt. "X," Lieut. Reilly, Messrs. Harrison, Gill and Brock practising in morning.

The Plain (R.F.C.).—Lieut. Fox on *B.E.3.*, Capt. Brooke-Popham on Avro, Capt. Loraine on 50-h.p. Nieuport, and Capt. Burke on *B.E.1.* Flying for 2½ hours each and then stopped by weather.

WEDNESDAY, July 3rd.

Brooklands.—Bristol School, 4.15 a.m., Mr. Hotchkiss solus, then with Major Higgins (new pupil). Mr. Merriam with Mr. Summerfield, Mr. Hotchkiss with Capt. Macdonell, Mr. Merriam with Major Higgins.

At 7 p.m. Mr. Hotchkiss with Major Higgins. Mr. Merriam with Mr. Summerfield, and afterwards with Major Higgins. Capt. Macdonell in pilot's seat for circuits, with Mr. Hotchkiss behind. Lieut. Wilmer straights with Mr. Hotchkiss up behind. Mr. Holyoake same. Mr. Merriam again with Mr. Summerfield for tuition, flying high to get away from many machines circling ground. At one time 10 machines in the air at once.



Mr. Raynham on the Flanders Military Monoplane. Mr. Flanders, in the passenger seat, is making adjustments.

At Sopwith School, Mr. Hedley and Capts. Powell and Alston out on Farman. Mr. Herbert did height test for ticket on same. In evening Burgess-Wright, Farman, and new tractor biplane all out together.

At Deperdussin School, Lieut. Reilly doing straights on brevêt machine very well, especially in landings. Capt. Dawes also doing straights on same for 25 minutes. In evening Lieut. Porte, R.N., out on two-seater for 15 mins. Mr. Gill doing straights on same.

Coventry Ordnance biplane out with Mr. Sopwith piloting. Machine seems very satisfactory with triple chain and Chauvière propeller.

Martin Handasyde out with Mr. Bell at wheel, but not lifting well.

Lieut. Hewlett, R.N., flying excellently on Blondeau-Hewlett biplane.

At Hanriot School, Mr. Sippe flying magnificently. Machine terrifically fast for low power.

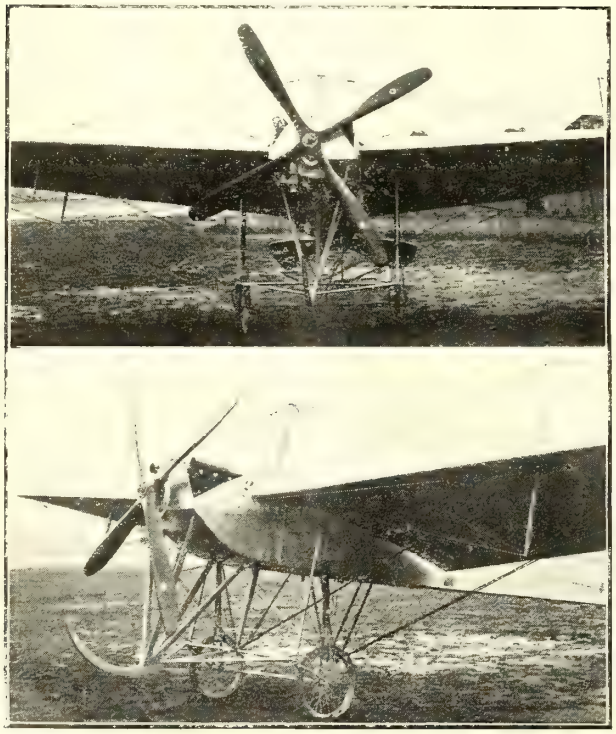
Vickers V testing engine, and new Flanders doing likewise. Latter a very smart-looking machine.

Brighton-Shoreham Aerodrome.—Mr. G. N. Humphreys out rolling for first time.

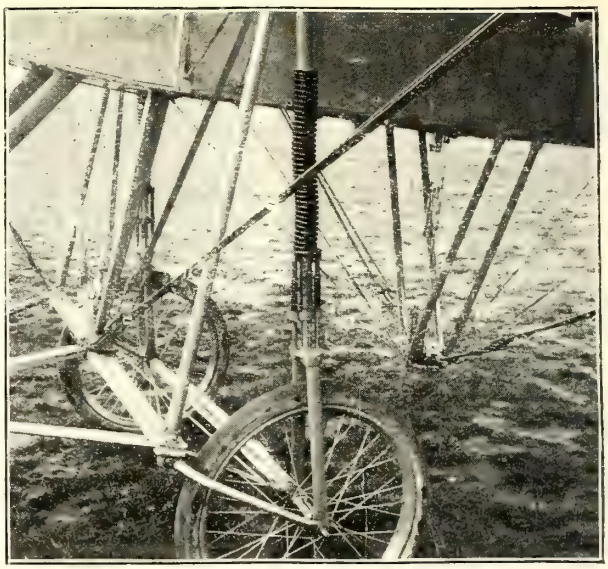
Eastchurch.—Commander Samson, R.N., out on *T.1.* Lieut. L'Estrange Malone flew *T.2.* (fitted with safety floats) from aerodrome to H.M.S. *London*, where she was taken on board for Portsmouth. Major Brocklehurst out testing Brocklehurst monoplane, and apparently from making too sharp a turn while taxi-ing, and with a beam wind, turned upside down, luckily without as much as a scratch to pilot, and, with exception of a smashed wing and radiators, no damage to machine.

Farnborough.—Mr. Cody doing circuits well up on monoplane; at same time Lieut. Kelly flying Cody biplane. First time two Cody machines have been in air together. Unfortunately Mr. Kelly, doing turn close to Cody shed, hit a tree and came down rather untidily; absolutely unhurt himself, but machine considerably bent. Mr. Cody hopes to have it repaired before long.

Hendon.—At Grahame-White School, morning hopeless. In evening Mr. Wynne up for straights on *F.7.* with Mr. Blackburn, but had to land in rough, and broke wire. While this was being repaired, Mr. Turner out with Mr. Kershaw on Howard Wright, preparing latter for brevêt. During this *F.7.* repaired, and following lessons given: Capt. Nicolas, Mr. Fuller, and Mr. Cholmondeley (Lieut.), straights with Mr. Blackburn; Messrs. Biard and Kershaw circuits, Mr. D. M. Allen (Lieut.), passenger flights.



Head on view and port bow of the Flanders monoplane.



Chassis details of the Flanders monoplane.

In evening W. H. Ewen School out for about 2 hours; Messrs. Ware, Edmund, Chamier, and H. H. and J. H. James all flying on Blériot.

At Blériot School.—Wind pretty bad all day, but dropped suddenly at about 7 p.m.; rewarded by being able to do about 1½ hours' good work. Mr. Hall 3 straights very well, and Messrs. Teulade and Clappen each a brace of straights, flying very evenly. M. Gandillon rolling on "taxi."

At Deperdussin School, found air too rough for pupils. In evening Mr. Sabelli flying circuits in excellent style.

Southampton.—M. Fischer on 70-h.p. Farman hydro-biplane out at 7 a.m. for trial trip, taking as his first passenger Miss Trestrail of Southampton. This lady erroneously stated in some papers to be first British woman to fly in hydro-aeroplane. As matter of fact, this honour belongs to Mrs. Bidder, who was passenger some weeks ago over Swale with Mr. Frank McClean. Later, M. Fischer up with various other passengers.

The Plain (R.F.C.).—Capt. Loraine on Nieuport with Capt. Lord Henry Seymour as passenger, Capt. Brooke-Popham on Avro with same as passenger, Capt. Burke on *B.E.1.*, also with same passenger. Capt. Loraine, Capt. Burke, Capt. Brooke-Popham, Lieut. Hartree, on various machines, flying for 2 hours, observing. Lieut. Fox on 70-h.p. Blériot, splendid flight for ½ hour. Capt. Brooke-Popham on Avro, 2 flights in evening. Capt. Burke on *B.E.1.*, flying well for ½ hour.

The Plain (Bristol School).—In morning Messrs. England, Greig and Pickles on monoplanes.

THURSDAY, July 4th.

Brooklands.—Bristol School, 5 a.m., Mr. Merriam out for solos, but weather too bad for school. At 7 p.m. Mr. Hotchkiss solus; wind high. At 7.30 Mr. Merriam solus; weather much better, so took up Mr. Summerfield, and afterwards Major Higgins. Mr. Hotchkiss took Capt. Macdonell in pilot's seat, and later Lieut. Wilmer. Mr. Merriam then with Major Higgins and after with Mr. Summerfield. Mr. Holyoake then solus.

At Sopwith School, Burgess-Wright out with Mr. Bell instructing Mr. Lane and Capts. Powell and Alston. Mr. Hedley doing circuits on school Farman. In evening, Mr. Sopwith out on tractor biplane with Messrs. Charteris, Sassoon and Ayres as passengers in turn.

Mr. Spencer out on his biplane in the evening.

Brighton.—Commander Samson, R.N., on *Short 41* hydro-aeroplane *en route* Sheerness to Portsmouth, alighted between West and Palace Piers in afternoon, and after short stop continued. Lieut. Spencer Grey, R.N., on *Short 43* passed and alighted at Newhaven.—C. A. C. W.

Eastchurch.—Lieuts. Spencer Grey and Sheppard, R.N., and Commander Samson, R.N., left Burntwick Island for Portsmouth on *T.5.* and the 100-h.p. tractor hydro-aeroplane, respectively. Commander Samson did the 196 miles at average of just over 60 m.p.h. Lieut. Grey obliged to stop at Newhaven for engine adjustments, which were quickly done, and he re-

sumed his journey to Portsmouth—He was accompanied by Lieut. Sheppard as passenger.

Hendon.—At Deperdussin School. No flying.

Portsmouth.—Arrival at Eastney of three aeroplanes for Naval Review. Commander Samson, R.N., on familiar Short hydro-biplane *S.41.*, flew from Eastchurch, doing 194 miles in 195 minutes; strong head wind at start till past Margate, then favourable wind to Selsey. Machine fitted with wireless apparatus, and passenger sending messages at intervals back to Eastchurch. Quite good flight both for man and machine. Excellent demonstration of staying power, but not quite fast enough for practical work. Most of journey at height of 2,000 ft.

Lieut. Spencer Grey, R.N., on later type Short machine *S.43.*, had to descend at Newhaven through Gnôme troubles; put engine right in choppy sea, and then on to Portsmouth without further incident.

Lieut. L'Estrange Malone, R.N., in charge of old *S.38.*, came into harbour about 6.30 on H.M.S. *London*. Left ship 19 miles from shore. Ship doing about 12 knots; wind about 20 miles an hour. Machine apparently lifted without run, and in spite of very bumpy journey made excellent landing at Eastney. Spectators on Southsea Beach visibly affected by rough journey of aeroplane.

Laffan's Plain.—Mr. Cody up 32 minutes, two flights, on new monoplane, doing circuits cheerfully at 1,000 ft. Machine not yet officially timed, but evidently terrifically fast.

Liverpool (Waterloo).—Mr. Hardman out in evening and made several straight flights in strong east wind.

Stafford.—Mr. Slack arived from Castle-Bromwich, covering 26½ miles in 24½ mins. on Blériot.

The Plain (R.F.C.).—Lieut. Fox four good flights on *B.E.3.*, taking up 2nd Corpl. Rigby and Driver Carter as passengers. Later Lieut. Fox another flight on 70-h.p. Blériot, after which on *F.8.* Lieut. Mackworth on *B.E.1.*, 5 flights all told, with Sapper Mullins as passenger. Capt. Brooke-Popham on Avro, doing 3 flights, with Lieut. Thompson as passenger. Staff-Sergt. Wilson out on *F.8.* solus. Lieut Hartree on *F.7.*, taking up Sapper McCudden as passenger. Capt. Loraine on *F.8.*, doing solos, after which 70-h.p. Nieuport, with passenger.

The Plain (Bristol School).—After trials by Messrs. Harrison and Pizey, Mr. Harrison took Capt. Lucina, Messrs. Lywood, Cheeseman and Featherstone. Mr. Pizey took up Major Ashmore, Lieut. Brophy, and Lieut. Gould. Flights made on biplanes by Lieut. Christy and Mr. Rawson Shaw. Prince Cantacuzene made first flight at this school. Mr. Lister also out. Mr. Busteed out on two-seater monoplane, Messrs. Campbell, England, Greig, Pickles and Barnwell also flying on monoplanes.

FRIDAY, July 5th.

Brooklands.—Bristol School, 4 a.m., Mr. Hotchkiss for test. Lieut. Bulkeley then up for ¾ hour, flying at about 500 ft., scribing figures of 8. Lieut. Anderson solus 4 circuits at about 200 ft. Mr. Merriam with Major Higgins, latter doing all controlling while Mr. Merriam warmed his hands in his pockets. Latter then up with Mr. Summerfield, who also able to control by himself. Mr. Hotchkiss then up behind Capt. Macdonell for 4 straights. Lieut. Wilmer, Mr. Holyoake, Lieut. Bulkeley, and Lieut. Anderson flying. Mr. Merriam up with Mr. Summerfield. Mr. Hotchkiss up with Major Higgins for 2 circuits, and found him so good that they changed seats and flew 4 straights. Lieut. Wilmer doing straights. Mr. Holyoake up for couple of circuits with Mr. Hotchkiss behind. Mr. Hotchkiss with Lieut. Waldron; Mr. Merriam with same pupil.

At Sopwith School, Mr. Bell instructing pupils on Burgess-Wright. Mr. Hedley and Capts. Powell and Alston on Farman, and Mr. Sopwith out on his tractor with passengers.

At Deperdussin School, Capt. Dawes out in the morning on brevêt machine. Mr Biard rolling on taxi quite well, chasing his tail much less than most beginners. In evening, Lieut. Gill doing straights for 10 mins. on 2-seater.

At Flanders School, Mr. Raynham did first straight flights on a monoplane in early morning, but stopped by tyre trouble.

Brighton-Shoreham Aerodrome.—Mr. F. B. Dowland out doing straights, while Mr. G. N. Humphreys out rolling again.

Hendon.—At Deperdussin School, all pupils practising on taxi, Lieut. Reilly and Mr. Gill doing their first circuits on the racer at 300 ft. in fine style, Messrs. Harrison and Brock showing distinct improvement in handling machine. In evening Mr. Sabelli flying with usual skill on racer, landing with engine switched right off.

Manchester (Fallowfield).—Lieut. Parke, R.N., despite high wind, made three fine flights on Military Avro; very little notice given, so only about 3,000 people present, but all very enthusiastic.

The Plain (R.F.C.).—In morning, Lieut. Fox out on *B.E.3.*, and after on *F.8.* Capt. Brooke-Popham on *F.7.*, and after on Avro, taking up Sapper Strugnell as passenger. Lieut. Hartree on *F.7.* Lieut. Mackworth on *B.E.1.*, with 2 passengers. Staff-Sergt. Wilson on *F.7.*, doing good solos. This was the last flight Staff-Sergt. Wilson made before his death. Capt. Loraine on 70-h.p. Nieuport, taking up Corpl Ridd as passenger. Later Capt. Loraine out on 70-h.p. Nieuport, taking up Staff-Sergt. Wilson as passenger. This flight terminated in the accident which caused the death of both pilot and passenger, as reported elsewhere.

SATURDAY, July 6th.

Brooklands (Bristol School).—Mr. Hotchkiss out at 6.30. Then took up Major Higgins. Mr. Merriam with Mr. Summerfield. Mr. Hotchkiss testing Anzani monoplane for about 10 mins, Mr. Bettington, jun., then out. Mr. Merriam on biplane with Capt. Macdonell. Mr. Hotchkiss took Major Higgins for tuition over golf links to Chertsey and back. Mr. Merriam with Mr. Summerfield, and Mr. Hotchkiss with Mr. Waldron.

At Sopwith School, very busy in evening, Mr. Bell doing many flights on Burgess-Wright with pupils. Sopwith biplane out across country with Mr. Sopwith in control.

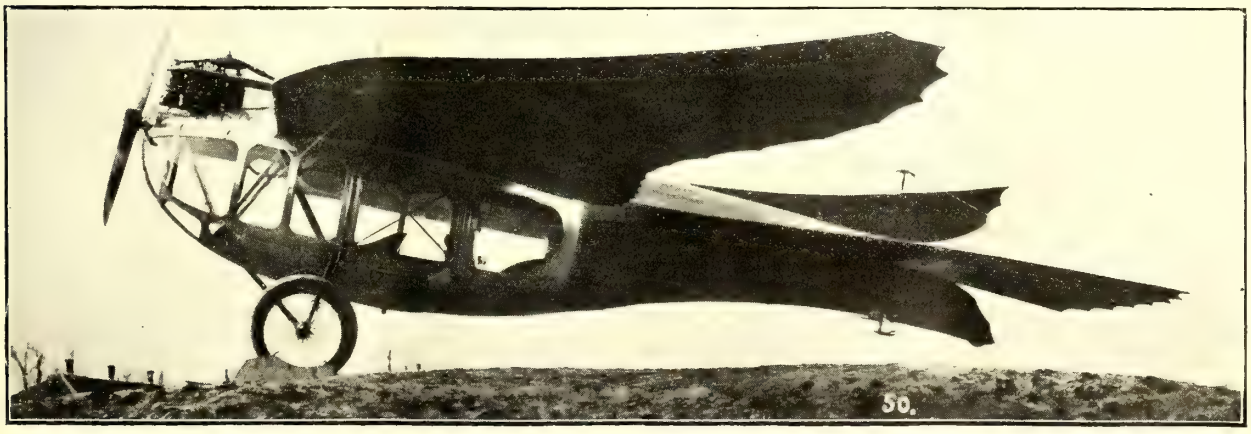
At Deperdussin School, Lieut. Gill up for 15 mins. on brevêt machine, and then Lieut. Porte, R.N., with Marconi expert as passenger, on the 2-seater, towing 250 ft. of paid-out cable behind, which did not seem to affect the machine's behaviour at all.

At Flanders School, 2 half-hour flights by Mr. Raynham.

Mr. Spencer out off and on all afternoon on his biplane.

Blondeau-Hewlett racing Farman out, first with Lieut. Hewlett, R.N., then M. Blondeau, and then Mrs. Hewlett up. All doing circuits, Mrs. Hewlett very high up.

Birmingham.—Arival of Mr. B. C. Hucks from Hendon, followed by exhibition flights. Exhibitions also given by Signor Nardini on a Deperdussin.



The new enclosed Etrich monoplane, which will not be seen in the Military Trials.

Brighton-Shoreham Aerodrome.—Mr. G. N. Humphreys, feeling more at home on the machine, started doing hops.

Eastchurch.—Captain Gordon, R.M.L.I., out on Henry Farman. Mr. Alec Ogilvie on N.E.C.-Wright, flying for 30 mins.

Hendon.—At Grahame-White School, nothing in morning; in evening time found after the meeting for Messrs. Kershaw and Biard to do some circuits on *F.7.*, and Capt. Salmond some straights.

At Deperdussin School, all pupils out doing straights, Mr. Brock flying very steadily. In afternoon Sabelli made several flights, took part in the Speed Handicap, was second in the first heat and second in the final, showing the fine Deperdussin racer to its best advantages and earning a well-deserved success.

Manchester (Didsbury).—Mr. Slack, I.C.S. pilot, arrived from Stafford, 43 miles in 43 mins., weather gusty and misty.

Manchester (Fallowfield).—Avro biplane on exhibition all morning and afternoon; wind too strong for flying. In evening, so as not to disappoint crowd, Lieut. Parke went up in 30 m.p.h. wind and made two flights of about 20 and 12 minutes. Crowd still more enthusiastic.

Portsmouth.—Flights over Portsmouth Harbour and Southsea Beach by M. Fischer on Farman hydro-aeroplane. Further flights also by Commander Samson, R.N., and Lieut. L'Estrange Malone, R.N., on Short hydro-aeroplanes.

The Plain (Bristol School).—In evening Mr. Harrison took up Capt. Lucina, Mr. Lywood and Major Ashmore. Messrs. Barnwell, Greig and Pickles out on monoplanes, after which Lieut. Christy passed for brevet. Mr. Harrison out with Capt. Lucina and Mr. Lywood, whilst Mr. Busteed gave tuition to Major Ashmore.

SUNDAY, July 7th.

Brooklands.—Wind and rain in afternoon. Late in evening many machines out, Mr. Sopwith flying excellently on new biplane with passengers, and Mr. Gordon Bell on same machine, flying with pronounced list to starboard. Mr. Sopwith also flying school Farman and Coventry biplane. School Farman ultimately disabled by Capt. Alston having slight argument with Mr. Bettington (minor) on Anzani-Bristol. Mr. Gordon Bell also on Sopwith School Burgess-Wright-A.B.C. flying well, and finally shedding right wheels on landing, without other damage.

Mr. Hotchkiss on school Bristol, and Mr. Merriam on same, with and without passengers. Mr. Hotchkiss took up winners of raffle for free flights—quite a good advertisement. Various pupils out on same machine. The brothers Bettington manœuvring on Anzani-engined monoplane in turn, but not enough power apparently for circuits.

Mr. Smith-Barry first on Sopwith School biplane and then on Bristol, doing terrific banks and glides at considerable—and sensible—height. A fine flier, but a trifle prone to do banked turns with tail down, which would be awkward if engine stopped.

Mr. Raynham testing new Flanders monoplane, with and without passenger. Renault engine not up to full power yet, so a trifle sluggish with passenger. Propeller apparently underpitched for speed of machine. Still, machine flies strongly, and should make a good show when tuned up.

Lieut. Hewlett, R.N., going strong, and high, on Blondeau-Hewlett biplane.

Mr. MacDonald doing short flights on *Vickers V*, but propeller not quite right for engine power.

Brighton-Shoreham Aerodrome.—M. Pierre Verrier arrived on 70-h.p. Renault-Maurice Farman biplane with passenger, having made splendid flight. Starting from Hendon at 4.17 p.m., and travelling *via* Richmond, was sighted from the aerodrome due north, flying about 1,600 ft. and very steadily in stiff breeze. He did one circuit of the aerodrome and then made beautiful landing close to hangars at 5.35 p.m.

Eastchurch.—In evening, Mr. Alec Ogilvie had aerodrome to himself and was busy passenger-carrying on N.E.C.-Ogilvie-Wright, passengers including Mrs. Morgan, whom he took up to 800 ft., and afterwards Messrs. Searight and Fowler in turns.

Folkestone.—Mr. Grahame-White, with Mr. Carr as passenger, arrived on Farman hydro-aeroplane from Boulogne. First hydro-aeroplane to cross the Channel. Various exhibition flights given in evening, and later, floats having been replaced by wheels, Mr. Grahame-White left for Hendon.

Hendon (Deperdussin School).—Sabelli gave a splendid exhibition on racer, banking heavily on sharp turns and coming down in a fine spiral *vol plané*.

Flying by Messrs. Travers, Lewis Turner, Sabelli and Gates all the afternoon and evening. M. Verrier started for Shoreham on the big Maurice Farman. Mr. Hamel was flying very well, and large amount of passenger carrying was done by the various Grahame-White pilots.

Mr. Lindsay Campbell, the Australian pilot, had a narrow escape from annihilating a portion of the crowd, for, getting on the machine in the space between the enclosures, he started the engine to turn the machine round, and instead of switching on and off, kept the switch on, with the result that, only for the excellent way in which the Grahame-White mechanics hung on, the machine would have charged straight into the railings and would probably have demolished a few people. As it turned out, the only casualty was a press photographer slightly scratched.

Liverpool (Waterloo).—Messrs. Birch and Hardman made several straights of 1 to 2 miles each; weather perfect, so both also did effected circles at 25 ft. to 30 ft. Mr. Melly also out on 2-seater for about 18 miles along beach to Freshfield hangars, and then inland over Formby Golf Links and Hightown and back to hangars at 1,000 ft., and terminating with a fine *vol plané* right in front of hangars.

Sidcup.—Mr. Grahame-White alighted about 7.20 p.m. for third time after leaving Folkestone, having had trouble with 70-h.p. Gnôme. Left machine for the night, and went on next evening to Hendon.

British Enterprise in Holland.

Mr. H. Hurlin, of Weston Hurlin and Co., writing from Scheveningen, Holland, announces that Mr. A. Monnier Harper has, in conjunction with Weston Hurlin and Co., opened a school for hydro-aeroplane work at Scheveningen. Exhibitions are to be given all over Holland with two W.H. tractor biplanes. Mr. J. R. Duigan, the Australian pilot, has joined the new firm, and will do the flying for these exhibitions. The scheme is very enterprising, and it is to be hoped that it will meet with the success it deserves. Mr. Monnier Harper has also entered a machine for the British Military Trials.

What is Raw Material?

It will probably interest constructors of British machines which are entered for the War Office trials to know that Cellon dope has been passed by the officials at the War Office as "raw material" in relation to the tests—that is to say that Cellon can be used on British machines without endangering their status.

Flying at Nuneaton.

Exhibition flights have been arranged to take place at Nuneaton to-morrow (Friday) and Saturday, 12th and 13th. The pilot will be Lieut. Porte, R.N., who will fly the British-built Deperdussin two-seater. These flights have been arranged by Aeros, Ltd., 39, St. James Street, S.W., and this firm will be pleased to arrange exhibition flights in any part of the United Kingdom, with any type of machine.

The Royal Aero Club.

New Members.—The following new members were elected:—John P. Algie, Lieut. Desmond L. Arthur, Harry Richard Busteed, Captain John Adrian Chamier, Lieut. Eric Lewis Conran, Hon. Mrs. Craven, Ernest Esdaile, J. E. Hutton, C. Lindsay-Campbell, Major Lionel Boyd Moss, and Captain O'Brien. Total membership to date, 1,392.

F.A.I. Aviators' Certificates.—The following F.A.I. aviators' certificates were granted:—

(240) Captain Herbert Charles Agnew, R.E. (Bristol biplane, Bristol School, Brooklands); (241) Major Lionel Boyd Moss (Bristol biplane, Bristol School, Salisbury Plain); (242) Captain T. Ince Webb-Bowen (Farman biplane, Sopwith School, Brooklands). Letter from the Aero Club of America requesting the club to give its sanction to the granting of an aviator's certificate to Mr. M. M. Singh was considered and the necessary permission granted.

F.A.I. Aeronauts' Certificates.—The following F.A.I. aeronauts' certificates were granted:—(23) Sergeant A. Lanman, R.E.; (24) Lieut. J. N. Fletcher, R.E.; (25) Lieut. T. G. Hetherington (18th Hussars).

F.A.I. Airship Pilots' Certificates.—The following F.A.I. airship pilots' certificates were granted:—(9) Sergeant A. Lanman, R.E.; (24) Lieut. J. N. Fletcher, R.E.; (25) Lieut. T. G. Hetherington (18th Hussars).

Mr. Slack's Latest Flight.

As The Aeroplane goes to press, one learns that he has flown from Manchester to Southport against a gale 35 miles in 55 minutes.

Mr. Slack and the International Correspondence Schools are to be sincerely congratulated on the fine work they are doing conjointly to spread genuine interest in aviation among the real workers, the class of people who are keen enough to educate themselves by the excellent I.C.S. method.

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All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.

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AVIATION MAPS, by Alexander Gross, contain features which make them indispensable to all aviators going in for cross-country flights. Maps from aerodrome to aerodrome stocked. Special routes supplied at shortest notice.—PUBLISHERS, "Geographia," Ltd., 33, Strand, W.C.

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A GOOD START.



The first "get-off" from British ground of M. Moineau, the crack Bréguet pilot, at Hendon on Saturday. He is here flying the identical 100-h.p. machine on which he scored so heavily in the French Military Trials last autumn.

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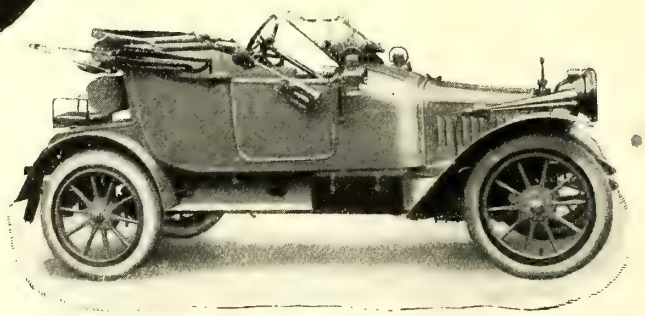
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MATTERS OF MOMENT.

THE NAVAL WING OF THE FLYING CORPS.

One cannot help feeling that there is something wrong somewhere with the organisation of the Naval Wing of the Royal Flying Corps. Compared with the flying the Military Wing has been doing lately, the Naval men have really not put up much in the way of performances. It is true that what they do on state occasions, such as the recent review, is as largely and as inaccurately advertised by the daily papers as if they kept a Press agent for the purpose, but even these flights are comparatively simple compared with the every-day work of military and civilian pilots. It is not the fault of the naval pilots, for Commander Samson and Lieutenants Gregory, Longmore, Malone, and Grey, R.N., and Captains Gordon and Gerrard, R.M.L.I., are quite in the first class, as has been proved by some of their flights. It is also not the fault of their machines, for, so far as workmanship and material are concerned, their Short machines are magnificent; their Deperdussin—delivered months ago—is still quite of the front rank of the world's machines; their Nieuport is still in excellent order; their Birdling monoplane, which they flew last year, is still good, of its type, if it has not been broken up; the Etrich monoplane and the Farman waterflier have only just been delivered, so they cannot count yet.

Looking at the matter simply as an outsider who is intensely interested in our aerial forces, and knowing but little of the strange processes by which they are operated, it seems as if the people responsible for what, in any other sphere of life would be called the business management of the concern, have just the little knowledge which is a dangerous thing and yet insist on acting as if they knew all about it, and refuse to take advice—an attitude which is also responsible for the unwholesome position of more than one aeroplane firm in this country. Consequently, whether they be acceptable or not, the writer herewith offers opinions and suggestions which mostly emanate from others as interested as himself and considerably more knowledgeable.

In the first place, as to machines. It is obviously unfair to a firm like Messrs. Short Bros. that their experimental hydro-aeroplanes should be sent out for exhibition purposes to great reviews, and on state occasions such as the King's visit to Weymouth, and that the rest of the work allotted to them, outside of experiments, should be the production of biplanes of their oldest type for school purposes. It seems to the writer that, after all the experimenting done at the public expense by the Royal Aircraft Factory with the *B.E.* type machines and with the hydro-aeroplane on Fleet Pond, it would be a very simple matter to order machines which would be a combination of the results of these experiments and of knowledge gained from experiments abroad, which presumably have been carefully followed by our agents in other countries—unless somebody has been neglecting his duty. The Short factory, like various others, is excellently equipped for turning out work of the highest class to any design officialdom may evolve, and surely, after all the money that has been spent, official designs should by now be capable of surpassing those produced by any private constructor in this country, considering how private enterprise has been cramped hitherto by lack of support. Also, it appears highly probable that, if left absolutely to themselves, the Brothers Short could turn out a standard design more efficient than that of the experimental machine.

Goodness knows who was responsible for the farce, and a dangerous one at that, of launching a biplane of an obsolete type from an impossible "scenic railway" erected on the forward superstructure of a warship. Apart from being a waste of public money, because it had all been done before in America, and endangering the lives of good men to no purpose, it was bad stage management, about on a par with parading a squad of supers in an up-to-date military drama and arming them with Sniders. It would have been cheaper, easier, and much more like the real thing to have fitted a light running-rail arrangement for the launching of the neat little Short monoplane which has at times made excellent flights, though until lately it has been relegated to obscurity.

The present way of doing things is wasting time and money, it is very unfair to the constructor chiefly concerned, and it is still more unfair to those officers who have done so much good work in the past and to those more recently joined who are capable of equally good work in the present.

These things are common talk in places where aviators assemble to discuss progress. It is obvious that as the senior Service is our first line of defence, the Naval Wing of the Royal Flying Corps should be better equipped, and should be stronger in personnel and material than even the Military Wing, yet we find it to-day short of pilots and equipped either with experimental or obsolete machines.

It is time someone at the Admiralty woke up and did things. We need big, powerful, weight-lifting machines for coast defence work; in this direction a little experimenting has been carried out, though nothing like as much as might have been done with the money available. We also need very small, light machines for service with a fleet at sea. Apparently nothing whatever has been tried for this

purpose. True the Deperdussin, the Short, the Nieuport, and the Birdling monoplanes have been bought, but the former has been fitted with hydroplane floats, so that it would be quite useless except for harbour work, and the others have not been used for some time, so we are little better off than we were before aeroplanes existed. True, no other nation has made much progress either, but that is no excuse. Our military authorities do not propose to have a flying corps any larger than will be proportionate to our very little army. It is therefore all the more necessary that our naval authorities should ensure that the Naval Wing shall be in proportion to our very big fleet.

Laws of the Air.

The meeting of the International Federation in Brussels on May 18th and 19th, 1912, of the Commission on the Laws of the Air, was attended by delegates from thirteen countries.

The following measures were carried:—

Art. 1.—The subjects or citizens of each of the signatory States shall enjoy the advantages of the present treaty in all the other signatory States. They shall be bound by the obligations attendant thereon.

Art. 2.—No modification may be made in the present treaty without the common consent of the other signatory States.

Art. 3.—Each signatory State may, for its part, renounce the present treaty at any time.

Art. 4.—The prescriptions of the present treaty apply to aircraft, *i.e.*, free balloons, dirigible balloons and aeroplanes.

Art. 5.—Every aircraft pilot is allowed to circulate above the signatory States, to land thereon and ascend therefrom, provided the following papers are carried: (1) A certificate of registration; (2) a F.A.I. certificate. Each pilot must conform to the prescriptions of the present treaty and to the laws and regulations of the country where he may happen to be.

Art. 6.—Every aircraft must carry on two sides, in such a manner as to be plainly visible, the registration numbers which shall identify such aircraft as well as an indication of the country where the formalities of registration have been complied with.

Art. 7.—The name of the country where the formalities of registration have been complied with shall be indicated by the following letters:—Germany, D; England G.B.; Austria, OE; Belgium, B; Egypt, EG; United States, U; France, F; Hungary, H; Norway, N; Holland PB; Argentine Republic, RA; Sweden, S; Switzerland, S.S.

Art. 8.—An agreement will be arrived at between the various signatory States with a view to arranging a system of customs regulations applicable to aircraft.

Rules Relating to Aerial Navigation.

Art. 1. *Regulations re Lights.*—The regulations concerning lights must be observed from sunset to sunrise in all weathers. The use of lights, other than those prescribed, is authorised, on condition that such lights are not exposed so as to be taken for the prescribed lights.

Art. 2. *Dirigibles.*—A dirigible balloon under way, that is to say, moving under its own power, must carry:—(*a*) At the head, a brilliant white light arranged in such a manner as to throw an uninterrupted beam over a horizontal arc of 220 degrees, that is to say, from right ahead to 110 degrees on either side; (*b*) on the right, a green light arranged in such a manner as to throw an uninterrupted beam over the whole of a horizontal arc of 110 degrees, that is to say, from right ahead to 20 degrees abaft the beam on the right; (*c*) on the left, a red light arranged in such a manner as to throw an uninterrupted beam over the whole of the horizontal arc of 110 degrees, that is to say, from right ahead to 20 degrees abaft the beam on the left; (*d*) the three lights, white, green and red, must be visible in each vertical plan corresponding to their respective zones in each direction comprised between the vertical downwards and the line as nearly as possible approaching to the vertical and making an angle of at least 30 degrees above the horizontal; (*e*) the green and red side-lights must also be provided with shields or screens arranged in such a manner that their light cannot be seen on the opposite side; (*f*) the white light must be visible at a distance of at least 4 kiloms., and the green and red side-lights at a distance of at least 2 kiloms. on a dark night with a clear atmosphere; (*g*) a dirigible balloon must in addition display a white light permanently arranged at the rear.

Art. 3.—*Aeroplanes.*—The rules relative to lights also apply to aeroplanes, but as a temporary measure of tolerance they are only obliged to carry a single lamp or beacon arranged in such a manner as to show the regulation lights.

Art. 4.—*Free Balloons.*—Free balloons must always carry a white light ready for use, and display the same on the approach of another aircraft.

Art. 5.—*Audible Signals.*—(*a*) During fog, mist, snow or heavy rains aircraft must, by day as well as by night, make use of powerful discontinuous audible signals; (*b*) in the same circumstances free balloons must also make use of such signals whenever they are in the neighbourhood of motor-driven aircraft.

Art. 6.—*Rules of the Road.*—A motor-driven aircraft must always keep at a distance of at least 100 metres from another aircraft in every direction.

Art. 7.—Motor-driven aircraft must always keep out of the way of free balloons.

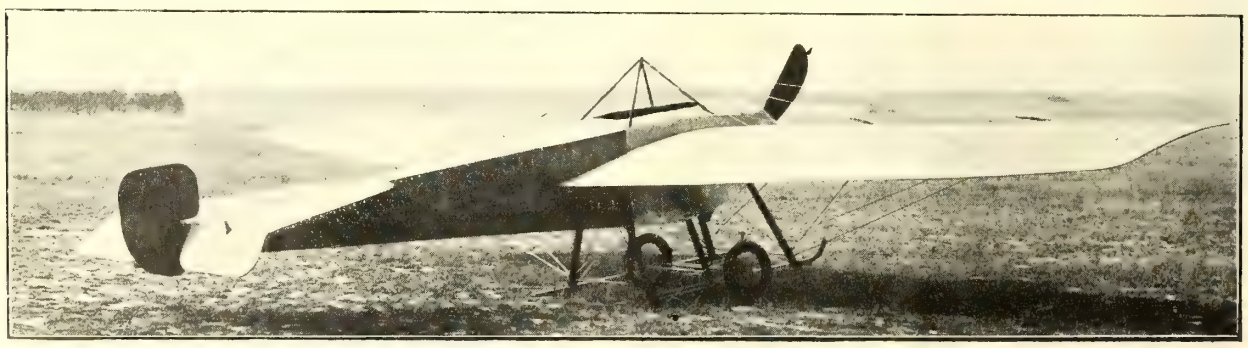
Art. 8.—Any aircraft approaching another aircraft, in no matter what direction, must always take to the right unless it is and remains at a distance of at least 300 metres.

Art. 9.—Whenever a dirigible balloon stops voluntarily it must display a conspicuous black ball; in this case it is subject to the same rules as an aircraft under way. If it is no longer under control owing to a breakdown of any kind, it must display two conspicuous black balls, placed vertically one above the other; in this case it shall be treated as a free balloon. At night, in both cases, it shall only display a white light and be treated as a free balloon.

Art. 10.—*Landing and Distress Signals.*—When a dirigible balloon is about to land it must: By day, display a triangular red flag on the under side of the *nacelle;* by night, wave a white light, or cause it to flicker, while burning the regulation lights.

Art. 11.—(*a*) In case of distress when above ground, as well as when above the sea, a dirigible balloon must: By day, display a triangular red flag on the under side of the *nacelle* in addition to the two superposed black balls mentioned in Art. 9; by night, wave a white light, or cause it to flicker, and at the same time extinguish the side-lights. By day as well as by night it must, in addition, make use of an audible signal: (*b*) A free balloon in distress must—by day, display a triangular red flag on the under side of the *nacelle*, and by night, wave a white light. It may, in addition, by day as well as by night, make use of an audible signal.

Art. 12.—*Use of Ballast.*—It is only permissible to use as ballast materials which are not likely to cause harm to third parties, such as fine sand or water.



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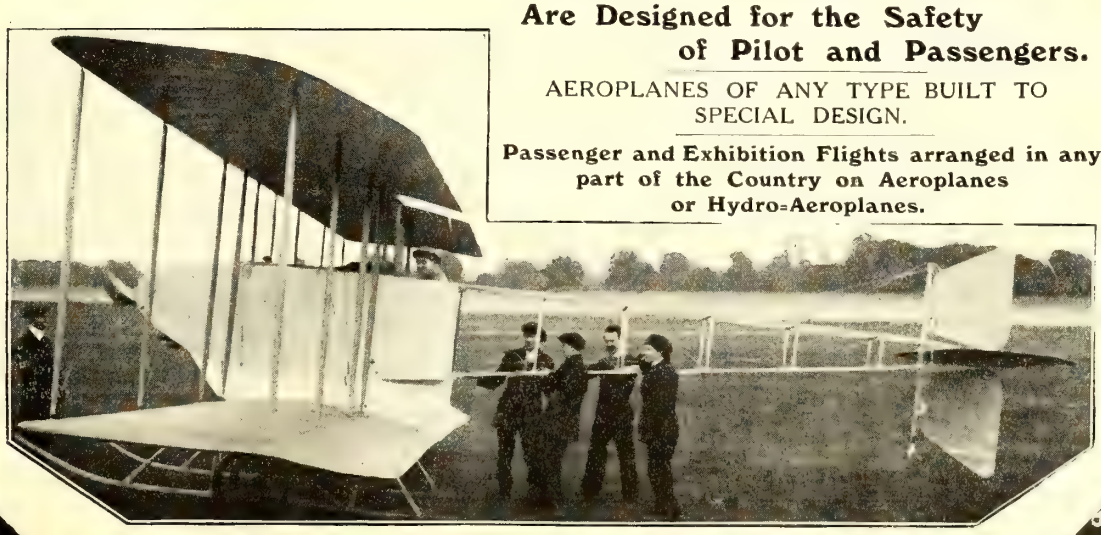
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Another French Opinion.

BY W. E. de B. WHITTAKER

Last week I dealt with the general views of a prominent French officer-aviator on the principles of organisation as applied to a military aviation corps. This week I propose to summarise the opinions of another French officer in a French daily newsaper devoted solely to sport on the details of organisation. In *L'Aero* of July 2nd there is an article entitled *Ce que sera l'aviation militaire francaise en* 1914 over the name "*Lieutenant du Beaudiez.*" He is, presumably, not an aviator himself, and I do not recall his name as one of note in the sullen sea of technical military literature. It is probable, therefore, that he is free from "professional" bias.

He divides the machines to be used on military work into four classes, the first of which is the scouting aeroplanes. Monoplane or biplane, the type is immaterial so long as it has accommodation for pilot and observer and has a large, efficient angle of view. Its range of action in advance of an army is from 100 to 150 miles radius, and its principal duty is strategical reconnaissance. Each aeroplane so classed would be fitted with a wireless telegraphic apparatus for the rapid and positive transmission of messages to headquarters. "Perhaps," says Lieutenant du Beaudiez, "they will be fitted with machine guns for defensive purposes in urgent cases against an aeroplane or a dirigible."

The second class comprises those aeroplanes which are attached to the artillery for fire-control purposes and to the Staff to convey orders from one part of the field of battle to another. They will be lighter and faster than the first class and will be single-seaters only. Presumably, though the author does not say so, the duties of tactical reconnaissance will be carried out by machines of the first class.

His third class is devoted to what he calls *torpilleurs*, by which he means "bomb-droppers." They are to make the "trenches uninhabitable, destroy bridges, disturb the enemy, and stop at critical moments the passage of a defile or a river. Clearly for this work the aeroplanes employed will be large and slow, capable of lifting great weight in addition to the pilot and observer." This type of duty is more easily planned on paper than carried out in practice.

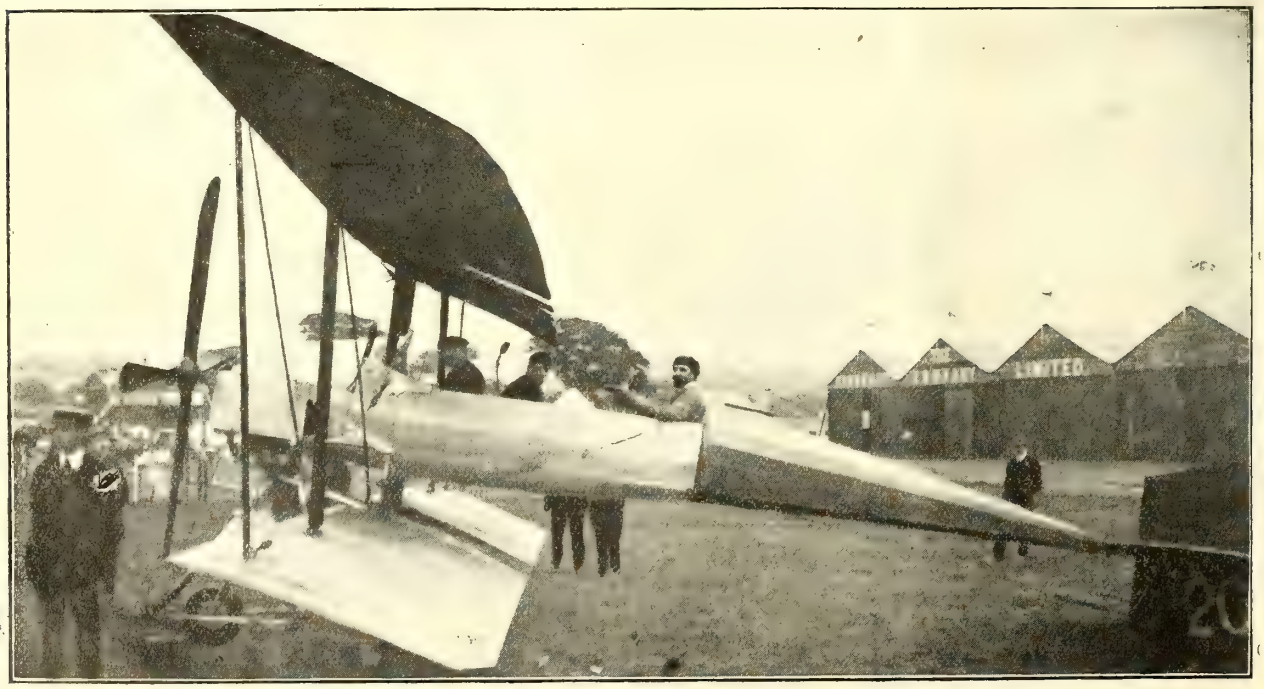
The fourth class has most originality. It is to consist of "flying workshops"—aeroplanes of the previously described third class, but carrying constructive material in place of destructive compounds. Struts, fabric, spare cylinders, wire, and other miscellaneous elements of rapid repair will form the cargo. Sufficient petrol and oil will be carried temporarily to provision an aeroplane out of action for lack of such liquid motive-power. This class has much to recommend it theoretically, and is open readily to early practical proof.

All two-seated aeroplanes on military service should have dual control fitted that the temporary or final exit of the pilot owing to extraneous events should not necessarily put the aeroplane out of action. Our author suggests that the pilot shall be called *mécanicien*, and shall be under the orders of the observer. This seems sufficiently obvious to merit no opposition.

As to the transport of aeroplanes, he suggests that each machine shall be dissemblable into two principal sections—(1) the wings, and (2) the *coque* (*i.e.*, fuselage, chassis, engine, etc.). *En route* each shall be packed in its wagon and shall only be assembled for the purpose of duty. The march formation of field artillery should be followed, and in the field the aviation column should deploy in a similar manner.

Before considering the question of *personnel*, Lieutenant du Beaudiez describes a new gun designed for the special purpose of eliminating the inquisitive and irritating aeroplane of the enemy. It is a heavy gun firing vertically or at a desired angle. "It is charged with a high explosive, which, without the use of a projectile of any sort, after firing produces an ascending atmospheric disturbance. The layers of air are violently agitated in the form of an inverted cone, of which the mouth of the gun is the apex." It is said that the force generated by this disturbance was, on trial, sufficient to fracture a steel cord at a height of 1,000 ft. A force of this nature would be amply sufficient to terminate the existence of any aeroplane manœuvring at a less altitude than 1,500 or 1,600 ft.

The author then proceeds to elucidate his opinions on the question of *personnel*. In all armies this is the



The Bréguet biplane at Hendon on Saturday, showing the disposition of the two passengers.

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dominant problem confronting those who have in their hands the task of organisation. Money will procure anything but human efficiency. Here only the profoundest thought and careful detailed organisation can succeed. Things ought to be so arranged that the personality of the officer commanding is not solely responsible for the high efficiency of his corps. There is not a great unceasing succession of born commanders. From time to time the pedantic automaton holds the reins. It is therefore of supreme importance that the organisation shall be sufficiently detailed and complete to prevent a collapse under such a commander. And it is the arrangement of the selection and duties of the human element that matters far more than the control of *matériel*.

He says—of course, referring exclusively to the French Army and Navy—that the Aviation Corps shall be formed entirely of volunteers. In the British Services all men are volunteers, and one is inclined to forget how important such a point may be in an army of conscripts. In a service to which a certain degree of special danger attaches it is, perhaps, well to employ men who are willing in place of those to whom it may be a matter of compulsion. There is an opposite view with which I am personally in agreement, but there is neither space nor cause for a discussion on the point.

Under Lieutenant du Beaudiez's scheme the scouting aeroplanes will be piloted by a mechanic under the command of an officer-observer. The observer will be highly trained in all those subjects necessary to the proper execution of his duties. On aeroplanes acting on artillery duties the passenger will be an officer who has served with the artillery and is thoroughly conversant with its work. Similarly, Staff aeroplanes will be piloted by Staff officers. The passenger on the *torpilleur* class will be an N.C.O., in whose charge are the bombs and the machine guns. The "flying workshops" have by far the most interesting crew—a soldier *mécanicien* as pilot and two men, one a worker in metal and the other in wood. One, at least, of the latter must also be a pilot.

The author points out the great danger of employing as pilot any of those whose sight is insufficient without the use of glasses. It must not be forgotten that, while there are in France and England several pilots of high excellence who have to use spectacles and yet find little trouble in flying in these times of peace, they might be put out of action at a critical moment during a battle merely by the loss or breakage of their glasses. The less physical disabilities on the part of the pilot the higher his efficiency.

He says that the selection of mechanics is of high importance. Only the best type of man should be employed for such services as aviation. Discipline should be rigid, as it is essential that the soldier *mécanicien* should obey immediately and without question the orders of the officer-observer. The pay should be commensurate with the work exacted. To maintain the efficiency of the corps and to retain the services of the mechanics after they have been well trained bonuses should be offered for re-engagement. Every inducement should be shown for their continuance as mechanics. All this applies equally in England. There is, in fact, a greater dearth of good workmen in this country than in France or Germany. The proportion of unskilled labour to skilled is higher in England than in the greater majority of foreign countries. The conditions of labour also differ greatly. To secure useful workmen for the Army one has to pay higher in England than in France, where military life, though it has less substantive attractions, is looked on with more kindliness and honour than in this country. We are not a grateful nation, and the services of the Army and Navy in times of stress are forgotten in the rush of postponed dinner parties in peaceful days.

"Lieutenant du Beaudiez," writing of organisation generally, separates the aeroplanes used for military purposes into two great divisions for the purposes of general army organisation as follows:—

(1) Independent aviation groups, comprising "scouting aeroplanes."

(2) Army Corps aviation groups, containing "artillery and Staff" aeroplanes, and also the *torpilleurs*.

The first division is in times of peace to be stationed along the frontier that a constant watch may be maintained on the enemies of France. The officer commanding will be a general of brigade on the staff of the general officer commanding in time of war. Two or three groups will be joined together under a colonel, each group being a lieutenant-colonel's command and consisting of five or six *escadrilles* of four aeroplanes each. An *escadrille* to be a captain's command. Each group will be self-contained so far as *matériel* is concerned, with transport wagons and *personnel*.

He suggests, also, that each aviation group shall have its own aerodrome, which will be chosen for its strategic value and not necessarily for the excellence of its surface or the prevailing tone of its atmospheric conditions.

The second division comprises those aviation groups which would form part of an army corps in peace and in war, and would be permanently in their respective army corps district, and in war following their respective arms of the Service. Transport would be regulated as is that of artillery or the Staff.

Withal a pretty scheme! It is too precise and clever to succeed, perhaps, but it shows what interest is taken in aviation and its military aspect in France. "Lieutenant du Beaudiez" may not be a soldier, but at least he knows something of his subject.

The Royal Flying Corps.

Captain F. H. Sykes, 15th Hussars, O.C. Military Wing, Royal Flying Corps, has been granted the temporary rank of Major whilst commanding the Royal Flying Corps (Military Wing), to date from May 13th, 1912.—W. E. de B. W.

The Royal Flying Corps' Newest Machines.

The two Henry Farman machines which passed for the War Office tests last week were flown by the French pilot Guggenheim, who made excellent flights. In the gliding test he shut off his engine at 4,500 ft., and, wishing to make it start again, he dived the machine to such an extent that he came down 1,200 feet in a minute, as shown on the official baragraph, and then, finding that the engine did not start, he proceeded to glide at a reasonable angle, alighting in perfect style right at the door of the shed alloted to him. Probably one of these machines will be flown by Lieut. Reynolds, R.E., and it will be interesting to see how they compare in practice with the British Avros already delivered.

Work Beginning at Upavon.

During the week ending July 6 the staff at the new Central Flying School were busy getting material and personnel ready for school work on a big scale. Wet and rough weather prevented much flying, but Captain Fulton set the ball rolling on the Thursday by making the first flight from the School in the Avro Tractor Biplane, being up for ten mins. Lieutenant Longmore, R.N., came over on Thursday on a Short biplane from Farnborough, this being the second Short at the School. Captain Gerrard, R.M.L.I., did a ten min. flight on a Short biplane. Both officers flew very well as the wind was gusty. Captain Fulton then did one 15 min. and two 10 min. flights, and Captain Gerrard one of 15 min. There was no more flying during the week, as weather was far too bad.

Sunday Flying During the Military Trials.

The Aeroplane is officially informed that during the Military Aeroplane Competition on Salisbury Plain in August no judging will be done on the August Bank Holiday, or on any Sunday during the Competition. It will, however, be permissible for owners of machines to fly them for test purposes on those days.

French Military Aviation.

Captain Félix, commandant of the military aviation centre of Etampes, was during last week experimenting with a new bomb-dropping apparatus which he had fitted to a Henry Farman biplane.

Lieutenant-Aviator Yence, accompanied by Lieutenant (Staff)

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Massenet de Marancourt flew on a two-seated Blériot monoplane from Etampes to Mourmelon on July 9th, much harassed by a heavy white fog.

M. Millerand, Minister of War, on July 9th, inspected the aviation centre of the Camp of Chalons. The *escadrille* of Chalons, the officer pilots of which are Lieutenants Challe, Bousquet, Prat, and Mailfert, and Sapper Séguin, and the *escadrille* of Verdun, in camp at the time, were both inspected. The former *escadrille* consists of Henry Farman biplanes and the latter of Maurice Farman biplanes. Despite the curious dislike of civilian aviators for flying in the disturbed atmosphere of noontide, these officers flew almost ceaselessly from 11.30 a.m. until 3 p.m. The inspection and review ceased at 4 p.m.

Lieutenant-Aviator de la Morlais, 4th Regiment de Chasseurs à Cheval, accompanied by Lieutenants-Aviator Bellemois and de Sylvestre, all on Blériot monoplanes, started from Nancy on July 7th, on a flying tour to Verdun—Nancy—Epinal—Nancy, which they accomplished in the day. The following day they flew to Lunéville, when they intend to make a close reconnaissance of the German frontier between Avricourt and Moncel-sur-Seikle. This Blériot *escadrille* uses Nancy as a centre for eight days, during which many practice flights will be made.

Lieutenant-Aviator Lucca with an observer left Saint Cyr on a Maurice Farman biplane on June 28th. Calling at the Camp de Mailly, he reached Bar-le-Duc that day, whence during the following days he made the habitual careful reconnaissance of the German frontier. Returning to the Camp de Mailly, he attempted to fly back to Chalons on July 6th with two passengers on board, an attempt which he carried out with success. Leaving Mailly finally for Saint Cyr, he was compelled to alight for the night owing to atmospheric trouble. He left his aeroplane in the open all night. The following morning he reached Saint Cyr.

Captain Félix was at Villacoublay two days last week, flying the Astra biplane, with which he was quite successful.

It has been commanded by the Ministry of War that men of the 1911 class who possess their certificates as pilot-aviators may be attached without examination to the aeronautical service. This Army Order to date as from June 26th last.

Two officer-aviators landed at Troyes on July 9th: Lieutenant Gourlez (*Chasseurs à pied*) on a Deperdussin from Villacoublay, and Lieut. Precardin (Infantry) on a R.E.P. from Buc. Lieutenant Gourlez arrived at Belfort on July 12th.

Lieutenant-Aviator Vaudein, accompanied by Commandant (Staff) Regnier, flew from Buc to Mailly on a Maurice Farman biplane in 2 hrs. 30 mins., maintaining an average height of 1,500 metres.

Lieutenant-Aviators Challe, Mailfert, Bousquet, and Prat on Henry Farman biplanes flew over the troops during firing practice on July 12th. Each officer had with him an observer (staff officer). The practice gained in reconnaissance was excellent.

Lieutenant-Aviator Faucompré has been appointed to the command of the military aviation centre at Juvisy to date from July 10th.

Four hangars have been erected for military use on the aerodrome at Biard, near Poitiers. A military commission, under the command of Captain Meynier, of Chalais Mendon, has officially passed these hangars for service.—W. E. de B. W.

French Naval Aviation.

The naval aerodrome at Fréjus is almost ready. A Bessoneau hangar has been erected on the sand, in which is to be housed a Henry Farman hydro-aeroplane. This machine will probably be flown by Lieutenant de Vaisseau Delage.

A Nieuport hydro-monoplane has been ordered.

During the last ten days Lieutenant de Vaisseau Cayla has made a number of excellent flights on the Voisin biplane (*type canard*), arising from and alighting on the sea in every case.—W. E. de B. W.

German Military Aviation.

A corps of military aviators is to be quartered at Doeberitz from October 1st onwards. It is to be composed of 2 staff officers, 4 captains, 15 lieutenants, 47 N.C.O.'s, and 259 men. From this corps will be drafted all aviators serving in different parts of the Empire.

The military dirigible *Z.III.*, partly burnt at Friedrichshavn recently, will be ready for service again early in August.—W. E. de B. W.

Bulgarian Military Aviation.

The Ministry of War has accepted delivery of a two-seated (side by side) Blériot monoplane, type XXI, Gnôme 70 h.p., piloted by Perreyron. Lieutenant Topratchieff, Royal Bulgarian Army, was taken for a cross-country flight on this machine on July 10 from Etampes to Blois and back. Three Bulgarian officers are at present learning to fly Blériot monoplanes at Etampes.—W. E. de B. W.



The Morane-Saulnier Monoplane of M. Bedel exactly as it was after his fatal accident on July 10th.

Servian Military Aviation.

Lieutenants Milotch, Ilitch and Stankovitch, and an N.C.O., Miodrag Tomitch, of the Servian Army, are at present learning to fly at the Blériot School at Etampes.—W. E. de B. W.

Grecian Naval Aviation.

Naval-Lieutenant Camberos has flown a hydro-aeroplane from Phaleros to Hydra, 80 kilometres, in 43 mins.—W. E. de B. W.

Norwegian Naval Aviation.

Captain Sem Jacobsen, Norwegian Royal Navy, is at present learning to fly a Maurice Farman biplane at Buc.—W. E. de B. W.

Turkish Military Aviation.

Captain Feyzi and Lieutenant Salim have taken aviators' certificates on R.E.P. monoplanes at Buc. They are the first Turkish officers to become pilots.—W. E. de B. W.

Belgian Military Aviation.

The Ministry of War has officially received several biplanes constructed by the firm of Bollekens, of Antwerp, under licence from Farman Frères. Their speed is over 105 kilometres an hour, and they can rise 500 metres in 6 mins. 30 secs., fully loaded.—W. E. de B. W.

Russian Military Aviation.

The Ministry of War has authorised a military aeroplane competition to take place from August 20th to September 20th. Prizes to the value of 120,000 roubles are to be distributed.—W. E. de B. W.

Continental Notes.

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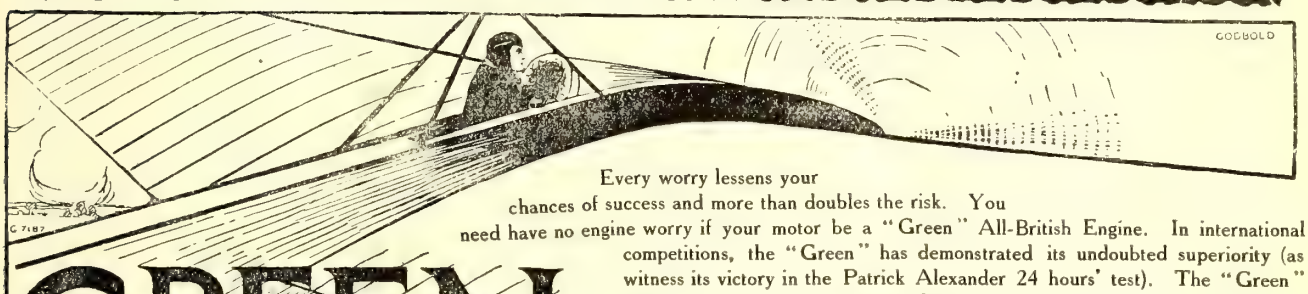
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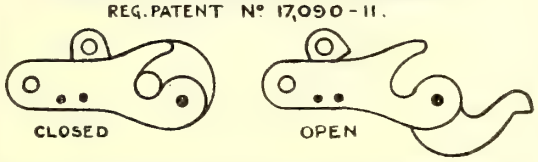
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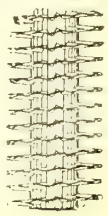
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a passenger only last week, and now, on July 10th, M. André Frey, on a two-seated (side by side) 80-h.p. Gnôme-engined Hanriot monoplane, has broken the former record and created a new one. His passenger was M. Moteau (weight 75 kilos). M. Frey was in the air from 6.54 until 8.1 p.m. He covered 150 kilometres at an average of 135 kils. an hour. The figures are :—

10 kils.	in	4 m. 30 1-5 s.	50 kils.	in	22 m. 31 1-5 s.
20 ,,	,,	9 m. 1 s.	100 ,,	,,	44 m. 56 1-5 s.
30 ,,	,,	13 m. 30 s.	150 ,,	,,	1 hr. 7 m. 19 s.
40 ,,	,,	18 m. 1 s.			

Humour has again entered into the daily life of Issy-les-Moulineaux, and life is joyous at times. It is announced in the French prints that M. Lazare is learning to fly a Demoiselle monoplane. If he succeeds in mastering the intricacies of pseudo insect flight his future as an aviator is assured. But it is a pathetic beginning for a pilot.

M. Oliverés, instead of continuing towards England and Hendon, has flown his Sommer biplane back to his "habitual home" at Mourmelon.

[Since these notes were written M. Oliverés was killed at Bourg on Monday.—Ed.]

M. Pascal, who has through stress of business as commercial manager of the Deperdussin Co. refrained from flying for nearly a year, made a fine flight in a Deperdussin monoplane at Etampes on July 8th. His skill has not declined in the interval.

From day to day the list of those who have died in the cause of aviation grows sadly. M. René Bedel, the winner of the Coupe Pommery, was killed at Bouy on July 10th, when flying a Morane monoplane from Saint Cyr to Mourmelon to take part in the Gordon-Bennett elimination trials. He left Saint Cyr in the early morning, and a heavy fog obscured the country. He started to come down not far from the Pyramid, but unfortunately did not see the telegraph wires until too late. His engine had stopped, but nevertheless he tried to clear the wires by rising. He actually crossed above the wires, but came down head first immediately afterwards. The aeroplane was not badly injured, but Bedel was instantly killed. He was born in Paris on October 28th, 1889, and took his brevêt on a Morane on September 8th, 1911, his number being 608. The photograph of his machine shows that a safety belt might well have saved his life.

Madame Chokevska, of Saint Petersburg, described as a Russian princess, has passed the tests for a pilot-aviator's certificate at the Johannisthal Aerodrome.

Mademoiselle Hélène Dutrieu is still making flights on a Farman hydro-aeroplane on the Lake of Enghien.

There is to be a meeting of hydro-aeroplanes at Tamise on the River Scheldt, in Belgium, from the 1st to the 9th of September. M. Paulhan is sending two machines to participate.

Sapper Séguin flew from Mourmelon to Vincennes on July 10th in 1 hr. 45 mins. on a Sommer biplane.

M. Armand Deperdussin has been decorated with the Legion of Honour.

The dirigible balloon *Eclaireur-Conté* left Issy-les-Moulineaux on July 11th, at 6.11 p.m., with nine persons on board. It landed on the 12th at 10.36 a.m., after having been flying 16 hrs. 24 mins. As the military authorities only required a flight of ten hours, this dirigible has passed into the hands of the Government.

M. Védrines, while taking part in the eliminating trials for the Gordon-Bennett at Reims on Saturday, July 13th, beat the speed records up to 200 kilometres. On a Deperdussin monoplane he covered the 200 kilometres in 1 hr. 10 mins., averaging 169 kilometres 810 m. an hour. The highest speed attained was 170 kilometres 610 m. an hour (roughly 106 m.p.h.) during the ninth circuit.

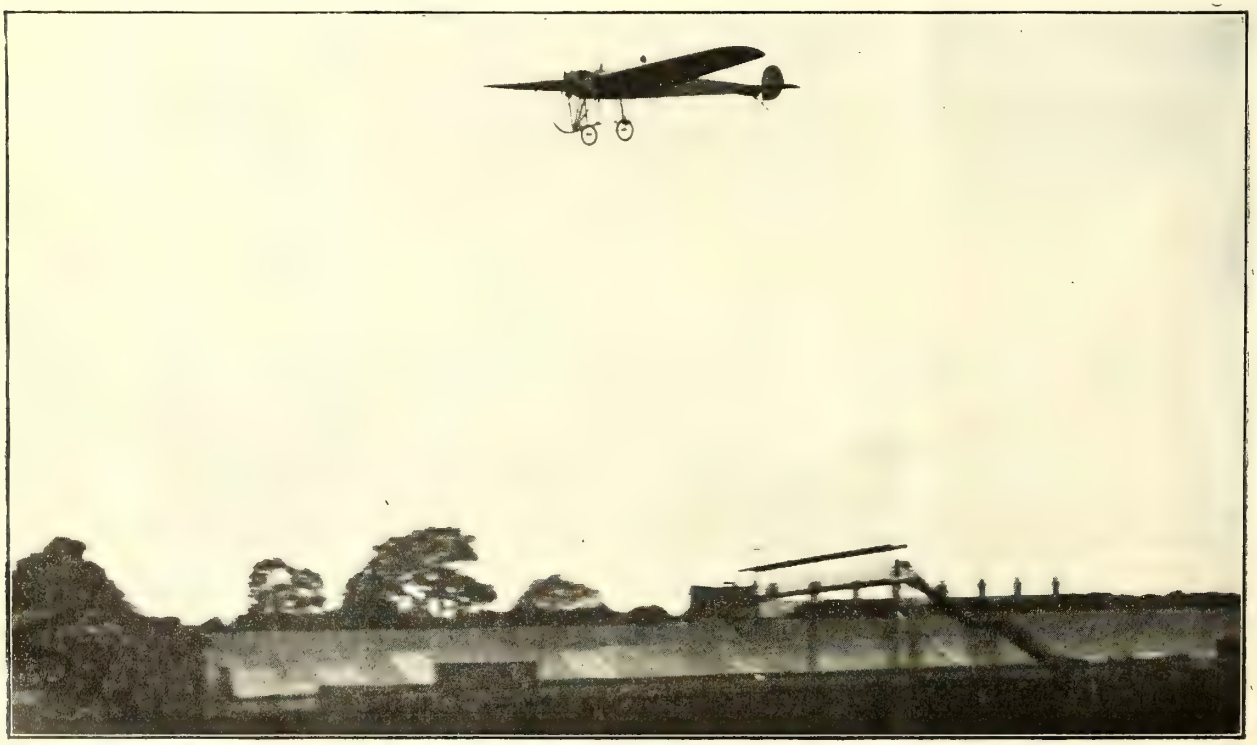
French Hydro-aeroplane Meeting.

A hydro-aeroplane meeting will take place on August 26th, 27th, and 28th, 1912, in the Bay of St. Malo. 38,000 francs are offered in prizes, and, among other events, there will be a hydro-aeroplane race, on August 28th, from the Bay of St. Malo to the Isle of Jersey and back. Particulars can be obtained from the Royal Aero Club.

The I.C.S. Educational Tour.

Mr. E. B. Seymour Norton sends the following interesting account of Mr. Slack's tour.

On July 8th practically all hopes had been given up of Mr. Slack being able to make a start for Southport. Quite suddenly, about 7 p.m., there came a temporary lull, and seeing Lieut. Parke, R.N., go up on his Avroplane at Old Trafford, Mr. Slack went up as well, having a magnificent send-off from an enthusiastic crowd at 7.35 p.m. At Wigan, the most difficult part of the whole arduous trip, Mr. Slack ran into a thick fog, and just north of the town he encountered a gale from the Irish Sea, blowing full 40 miles an hour. Mr. Slack had to fight sideways through the gale, crab-fashion, and drove on through the mist and wind. When about three miles from the coast he suddenly dropped from an altitude of 3,000 feet to one of 2,000 feet, and feared engine trouble. From this point onwards his course was a series of sharp downward drops and horizontal flights, just like a row of steps, and he was compelled to skip over the roofs of the houses on the front in true Cody fashion.



Mr. Raynham on the new Flanders with Renault Engine, flying at Brooklands last week.

It took him no less than 55 minutes to reach Southport Sands from Didsbury, only about 37 miles as the crow flies. Mr. Slack was welcomed by a crowd of some 15,000 spectators on the Esplanade and Pier, and was received most enthusiastically.

Mr. Pochin placed his hangar at the disposal of the I.C.S., and the Blériot was safely stored therein. Mr. Pochin gave him the free run of all his tools, and he was consequently able to overhaul the motor; inspection showed nothing radically wrong, and both M. Lapeyre and Mr. Slack believe that the trouble of Monday evening was solely due to powerful downward-acting *remous* near the coast. I may mention that Mr. Pochin has built his own monoplane in the hangar placed at Mr. Slack's disposal.

On Thursday morning, after everything had been put to rights, Mr. Slack tried to start, but could not leave the sands on account of violent rain. The weather was very bad on Thursday evening, and so no attempt was made. On Friday morning he made a very early start, and flew about 14 miles on the way to Lancaster. When well over the estuary of the River Ribble, he ran into a bad thunderstorm and a fresh gale, with worse weather in the distance ahead. He simply looked round for the nearest land to avoid being carried out to sea, and found that his best plan was to go back on his course, and so he returned to Southport instead of descending farther north. The crowd on the front cheered him heartily as he returned.

On Saturday morning and evening the weather was very bad, conditions impossible for flight, but on Sunday morning he made a fresh start about 5 a.m. He was only able to go about six miles, being forced to return on account of dense mists. Late on Sunday evening he tried again, and got through to Lancaster without further trouble, flying over Southport, Blackpool, and Morecambe *en route*.

On Monday he flew over Morecambe Bay to Barrow and Millom, and was brought down at Egremont at 7.25 p.m. by dense fog.

Work in Scotland.

The Caudron biplane, with a 35-h.p. Anzani engine, which has been bought by Mr. G. S. Wilson, of the *Edinburgh Evening News*, has recently been at work at Lanark.

At present the ground there is rather cramped owing to a Territorial camp, and operations will have to be suspended during the rest of this month until August, when the Territorials depart. Mr. Wilson and his cousin, another Mr. George Wilson, have been doing a considerable amount of rolling practice, and hope to start flying as soon as they can get a little more room. The Anzani engine is going very well. At present this machine is believed to be the only one in Scotland which is in flying condition. Scotland needs waking up.

Aviation in Manchester.

Mr. Petchell B. Murray, a member of the Committee of the Manchester Aero Club, writes taking exceptions to the remarks made recently. One would like to point out that no blame is due to the present Committee of the Club, which has been completely changed recently, and is composed of men who are really doing their best to instil some life into aviation in Manchester. Still, the club is composed of members as well as a Committee, and if the members do not support the Committee one cannot honestly say that a club is alive, so the blame for the inert condition of the Manchester Club rests with the members and not the Committee

It is certainly peculiar that Manchester, probably one of the richest cities of the British Empire, and moreover a city which contains an aeroplane factory which has turned out machines which, in official competition with Government-built aeroplanes, have proved themselves the most efficient of their type, should even now be so far behind in everything pertaining to aviation.

If the population of Manchester had been French or Germans, the city would by now have owned a properly equipped aerodrome, probably three or four aeroplane factories, and forty or fifty pilots with machines flying at that aerodrome every day, but of course, being English, it will take a few years before that stage of development is reached.

Two Interesting Moves.

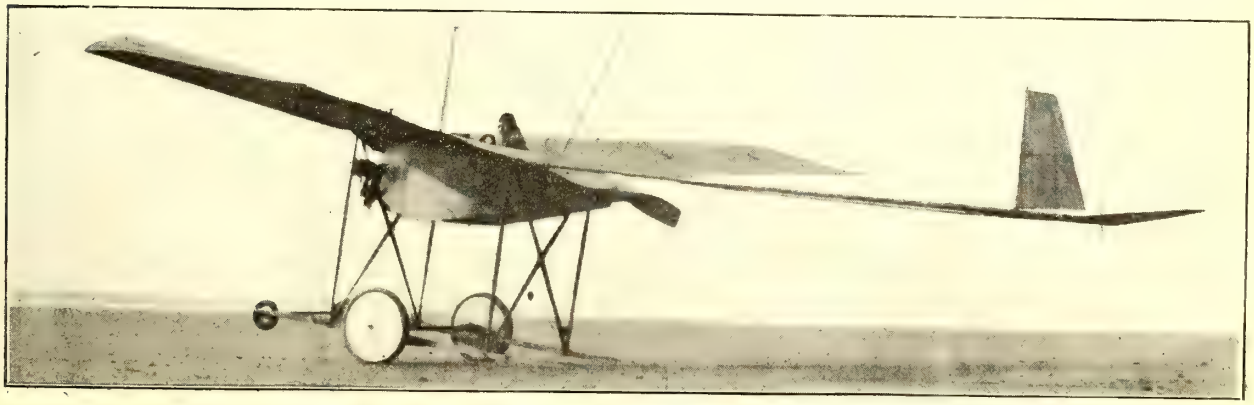
Two of our best pilots have, during the past week, altered their arrangements. Mr. Copland Perry, who took his certificate last year on a Valkyrie, has joined Mr. Sopwith with a view particularly to hydro-aeroplane flying. After leaving the Valkyrie School as a qualified aviator Mr. Perry went to the Army Aircraft Factory, as it then was, and obtained some notable experience. He flew the *B.E.1.*, the *B.E.2.*, and the *B.E.3.*, and the Avro, which was the first of the War Office orders to be delivered, as well as acting as pilot in the experiments on Fleet Pond with the hydro-aeroplane designed by Mr. de Havilland. He quickly distinguished himself in his new job by being the only pilot to go out in the wind at Brooklands on Wednesday last, which he did on the Burgess-Wright, and by winning the £50 cross-country race on Saturday last and the "round the pylons" race on Sunday. His flying on every occasion has proved him an unusually good pilot, with confidence and ability to fly in a strong wind, and sense enough not to play tricks.

The other move is that of Mr. Sabelli, who has joined Mr. Ducrocq at the Hanriot School. He had his first trip on a 50-h.p. machine last week-end, and at once justified the high opinion of him which has so often been expressed in this paper. He may be confidently expected to put up a very big performance before long. In him and Mr. Sippe, Hanriot (England), Ltd., have two of the best and most dependable pilots in the country.

An Appeal to the Country.

It almost seems as if we, in this country, are on the verge of getting up a public subscription to buy aeroplanes for the nation. It will be remembered that an attempt was made by the proprietors of *Vanity Fair* some months ago, but apparently that scheme has been held over for the time being. Now, however, Lady Loraine's letter to the Press on Saturday, and Major-General H. T. Arbuthnot's letter on Monday, in his capacity of Chairman of the Aerial League, give one the impression that something in this direction may be done. If aeroplanes are to be bought by public subscription it is to be hoped that the thing will be done properly, and that the subscription will not become merely an advertisement scheme for any one particular paper, but will be taken up by all papers alike.

In principle, of course, it is entirely wrong that weapons of war should be bought at all by public subscription. The Government for the time being is elected for the purpose of ruling and protecting the country, and it is the duty of the Government to provide adequate equipment for national defence, and in the department of aviation excellent progress is now being made, despite errors in administration. It is altogether wrong and immoral that such defence should be left to private charity, quite as wrong, in fact, as that the men who are to defend the country should be supplied by voluntary personal contribution instead of every man being compelled to do his period in the national defence force.



A Military Competition Machine.—Mr. Fenwick on the Mersey Monoplane.

The Second July Meeting.

Hendon is really quite a wonderful place for upsetting preconceived ideas. Saturday was hot and windy, so there ought to have been heat remous and gusts enough to prevent anyone from flying. Also, the "star turns," Messrs. Grahame-White, Hamel, Hucks, Ewen, and Verrier were known to be away, so everything pointed to there being very little flying and very little crowd. As it turned out, there were several thousands of enthusiasts present—roughly, ten thousand—and the flying was as good as ever, and rather more enjoyable because so unexpected. I know that one important member of the staff of a big daily paper came up "to spy out the nakedness of the land"—by way of justifying the belief that there are only four or five Britishers who can really fly, and was disappointed to find the flying going on more merrily than ever.

In the absence of Mr. DelaCombe, the usual clerk of the course, the meeting was run by Mr. Whittaker, who worked everything with military precision and kept the course remarkably clear of unnecessary people.

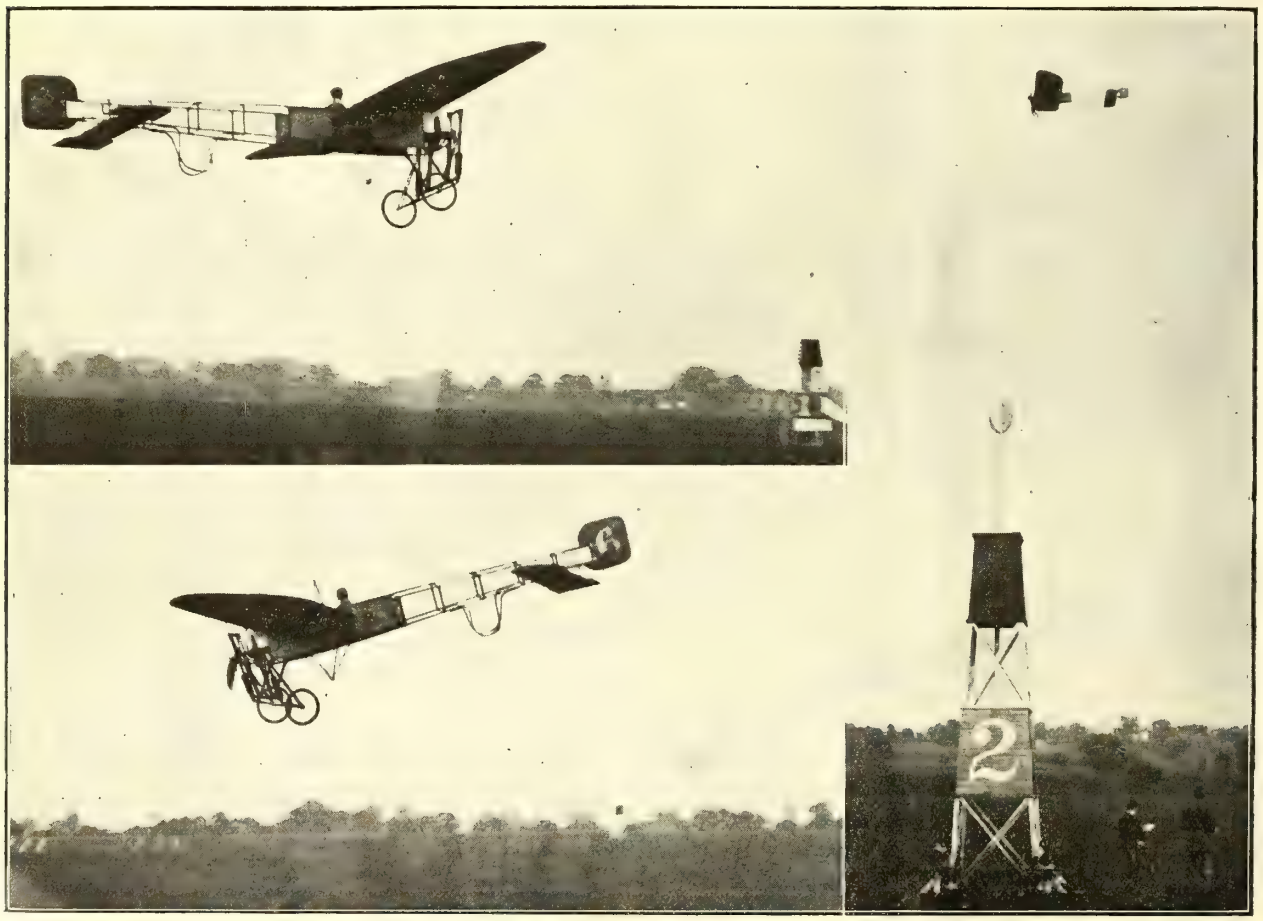
Two of the competitors not turning up, the Relay Race was cut out, and a six-lap handicap arranged instead. This was won by Mr. Sabelli on the little Deperdussin from Mr. H. J. D. Astley, familiarly described on the programme as "Otto," on the ancient Gordon-Bennett Blériot, which he flew splendidly though it was quite strange to him. Mr. Lewis Turner on one of the G.-W. School box-kites gave up through engine failure, which was wise, for there was no good in struggling on in such a dangerous wind, risking both himself and the machine.

Later in the day, when the wind had gone down to a mere 25 miles an hour or so, there was another race. In the first heat Mr. Sabelli beat Mr. Turner on the box-kite, and in the second Mr. Astley had just caught Mr. Nardini when the latter's Gnôme got tired and he had to descend. In the final Mr. Astley, who was now getting accustomed to the machine and cornering very finely, beat Mr. Sabelli, but not by much.

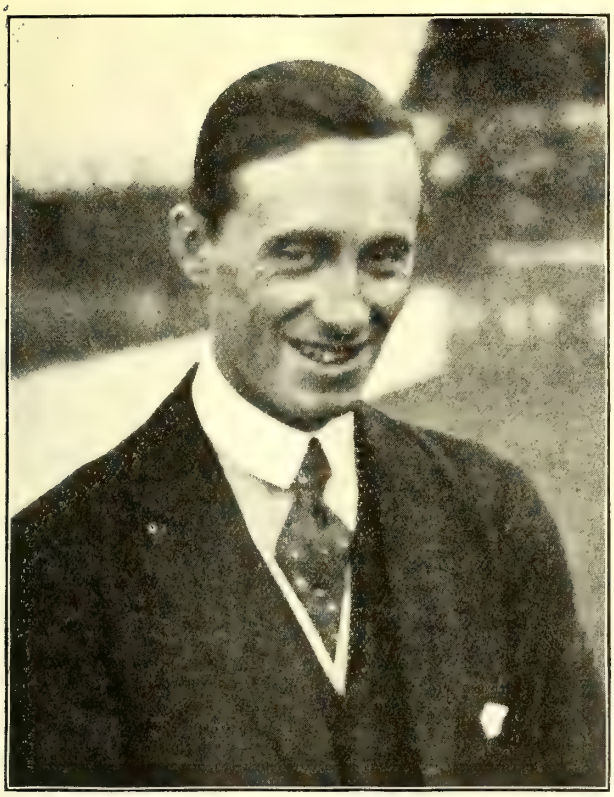
It was, however, the exhibition flying which was so fine. Firstly, Mr. Astley, a welcome return to aviation, flying the old Gordon-Bennett Blériot, slow on her controls, with very flat wings, intended for 100 h.p. and flying with 50 h.p., and generally approaching decrepitude, turned out early in a shocking wind and showed what perfect hands can do. I hope Mr. Astley will become a more regular flier in future; we can do with more men of his type.

Later, young Marcel Desoutter, on the same machine, having had an hour and a quarter's practice on it for the first time in the morning, came out for his second flight on a 50 h.p. machine, and proceeded to imitate Mr. Hamel. The imitation was excellent, and really the old machine did all that Mr. Hamel did with it when he flew it a few weeks ago. Only Desoutter forgot the fierce east wind every now and then, and in turning was drifted right over the enclosures, much to the terror of the crowd. It was necessary to remind him, when he came down, that he was not yet a Hamel, and so could not be allowed to take the liberties with his machine which Mr. Hamel does; but, given an up-to-date machine, and plenty of practice, I cannot see anything to prevent him from entering the same class as Garros, Simon, and Hamel, if he really wants to adopt that style of flying. The lad has nerve and hands; judgment will come with practice.

The other outstanding feature of the afternoon was the great flying of M. Moineau on the 100-h.p. Bréguet. This machine has a 14-cylinder Gnôme with spur gearing to the propeller. The gear-wheels scream astonishingly, but apparently they stand up to the work, and the machine flies beautifully. Those who saw M. Blanchet's horrible wobblesome get-off in the Circuit of Britain last summer would never believe the two men were flying the same type of machine, so much difference do power and an experienced pilot make. The big Bréguet has a very flat gliding angle, but M. Moineau seems to prefer to come



New Stars at Hendon:—Top left, Mr. H. J. D. Astley flying the old Gordon-Bennett Blériot. Below, Mr. Marcel Desoutter gliding on the same machine. On the right, Mr. Astley is seen making his first appearance round the pylons in a big wind.



Mr. H. J. D. Astley.

down in a spiral dive which would make even Simon envious. When one sees him doing these things it is so comforting to recollect the steel structure of the machine and the massive cables and steel ribbons used all over it. Its best friend could not call the Bréguet a pretty machine, though one could easily make it so, but it is such a thorough engineer's job that one cannot help admiring it. And, of course, it is admittedly one of the best fliers, and one of the safest machines in the world. I only hope the British-built Bréguets for the Military Competition will be as good, for if so Mr. Moorhouse and M. Moineau will give some of the other competitors something to beat.

Mr. Nardini flew excellently on the aged Deperdussin on which Mr. Valentine completed the "Circuit of Britain" a year ago. It has been lying in a shed at Eastchurch, and Mr. Nardini bought it to replace his machine which was burnt. Owing to Gnôme troubles he did not show his true form, but he is a plucky and capable flier who deserves encouragement. At the end of his first flight he came down much too close over the crowd, and he must be warned against doing this. However, as a judgment on him, he landed in bumpy ground, and having no skids on the machine, his quaint Cyrnos propeller hit the ground and broke.

Late in the evening M. Verrier, with Mr. Clement Greswell as passenger, came back on the big Maurice Farman from Brooklands, cutting off at 2,300 feet and doing one of those imposing flat descents for which the machine is famous. The 19 miles took 35 minutes, and the machine flies at 55 miles an hour, so the wind must have been fairly strong. Afterwards M. Verrier went up again with a passenger—he is a perfect glutton for work.

Altogether it was a most entertaining afternoon, and as usual the faithful few hundreds hung on to the railings till nearly dark. Among the "visitors" was M. Salmet, looking rather pulled down by his accident but as cheery as ever. To everyone's gratification he is quite recovered and hopes to fly again this week.

Just as a suggestion to popularise aviation still more. Would it not be possible, when flying is over and the bulk of the crowd has departed, to admit the remaining enthusiasts from the cheap enclosures to the space in front of the sheds, so that they could see the machines at close quarters? I am sure the concession would be greatly appreciated.—C. G. G.

Sunday at Hendon.

Sunday was apparently hotter than Saturday, and even the breeze was sultry. Little flying took place in the early part of the afternoon. The first out, at about 4 p.m., was Mr. Astley, who flew over to St. Albans to have tea with some friends, and returned about 6.30, after which he did some pretty exhibition flying. M. Verrier was out soon after, and was occupied until shortly after six carrying passengers, when he was stopped by a broken wire getting wound up in the propeller on landing, breaking both the propeller and a strut.

Mr. Noel, Mr. Turner, and Mr. Travers each made flights on the old Grahame-White biplane. Mr. Hamel, accompanied by Miss Trehawke Davies, flew with his usual rashness on the two-seated 70-h.p. Blériot. The fact that Mr. Hamel has in the past been immune from accident does not indemnify him for all time. With few exceptions those whose names rank highest in the records of flying rarely do things which, though startling to those who understand, involve needless risk to pilot and passenger.

Mr. Grahame-White made an excellent flight to some 2,500 ft., with Mr. Gates as passenger, on the new 70-h.p. Henry Farman biplane which he brought from France during the week. This machine is a wonderful example of how to get vast surface for little weight.

M. Moineau took out the 100-h.p. Bréguet, and flew with splendid precision for about ten minutes, banking in a most astonishing manner. Shortly afterwards he flew with Mr. Whittaker as passenger. After making two circuits of the aerodrome at 550 feet he descended in a sharp spiral *vol plané*, with a splendidly judged landing.

Mr. Nardini on the Deperdussin was also out.

The last hour of daylight saw Mr. Noel take up six passengers, one after another, on the big 70-h.p. Farman. At dusk Mr. Travers made a short flight on this machine, landing perfectly. Mr. Lewis Turner made the last flight of the evening on the same machine.

The third July meeting at the London Aerodrome will take place on Saturday next, July 20th. This will include a cross-country handicap for a silver trophy and 20 sovs., with 10 sovs. for the second; and a speed handicap for prizes of a like value, with 5 sovs. added for the third. There will probably be several new competitors, so excellent sport is assured.

Hard Luck at Farnborough.

The first of the Flanders machines had extremely hard luck during its first tests at Farnborough last week. After flying for 40 minutes the Renault carburettor went wrong, and Mr. Raynham had to come down. However, the machine had shown a speed of 63 m.p.h. over the timed course, and as the fault was purely one affecting a French engine, the machine was passed so far as its flying was concerned. Unfortunately, during the rolling test one of the radius rods of the wheels came adrift, and the wheels fell back, letting the machine down on one side, with the result that certain of the chassis struts suffered. The machine finally settled on one wing tip, and the the wing stood up to the weight without suffering any harm, which speaks well for its construction. The alteration needed in the chassis is very slight, and the second machine, which will probably be ready this week, may confidently be expected to pass without further trouble.

A Colonial Recruit.

One of the oldest and best-known of aeronauts in Australasia is "Captain" Penfold, whose portrait appears herewith. He has toured Australia up and down and crossways and round about with balloon and parachute, he has descended comfortably and uncomfortably on land and water—the latter including the dodging of sharks in Sydney Harbour—and has in one way or another broken most of his bones, except his vertebræ. Having, despite these efforts, made up his mind that the air still holds fresh experiences for him, he has come to this country to learn to fly a heavier-than-air machine. He is at present making a tour of the various aerodromes, picking up assorted knowledge of the ins and outs of aviation, and when he is satisfied as to how the thing is done he intends to join one or other of the schools and become a pilot-aviator. May his enterprise meet with merited success.



"Captain" Penfold.

An Argument and a Suggestion.

During the past week an argument seems to have been raging at our various aerodromes as to what is the proper thing to do if an aeroplane over-banks and side-slips in the direction of the lower wing. Apparently nearly all school pilots have the same remedy.

Let us assume that we are concerned with a case in which the left wing is the lower, and that the right wing is raised. Now at most schools one is taught that rudder and warp (or aileron) control are almost interchangeable. That is to say, if one rudders to the right the machine swings to the right, the left wing comes up—owing to its increased speed—and the right wing drops. Similarly, if one warps to the right, the left wing comes up and the right wing drops, and—if the machine and the warps are properly balanced—the machine will do a right-hand diving turn. In practice, however, the warp or ailerons very seldom do balance, so generally the wing which is warped to lift sets up a drag which tends to pull the machine round to that side, and it is necessary to rudder against the warp either to get the machine on an even keel or to bank it up when going round a corner.

The trouble which arises from this is that if, in turning a corner to the left, as mentioned above, the banking becomes too great and the machine begins to fall inwards to the left, the pilot's natural impulse is to rudder to the right and warp the left wing up at the same time. This may be all right in correcting a tilt to the left caused by a gust, but in the opinion of many of the most expert pilots it is quite wrong in correcting a side-slip. The effect, as was mentioned last week in discussing Captain Loraine's fatal accident, is to deprive the after part of the machine of its most effective lifting surface, because the rudder is turned upwards as the machine slips down to the left, and consequently the machine has to attain considerable velocity sideways and downwards before the other vertical surfaces which may be aft of the centre of gravity of the machine become effective and throw the nose of the machine downwards.

Consequently, when the nose of the machine does get down, the machine is falling very fast, and as a general rule the pilot assists it by using the elevator, which accentuates the speed. Therefore, when the machine ultimately reaches a diving position, the speed is so great that it takes some distance in which to correct it.

Measured purely by time, a well-designed machine diving fast may correct quicker than one which is gliding slowly; but though the time is shortened the distance is increased, and if the accident happens anywhere near the ground, the machine will probably hit before the nose comes up. This is undoubtedly what happened in the cases of Captain Loraine's and Mr. Fisher's two accidents, besides innumerable others which have not been attended with fatal results, such as the smashing up of Mr. Sopwith's biplane with Mr. Bell and Mr. Charteris on board last week.

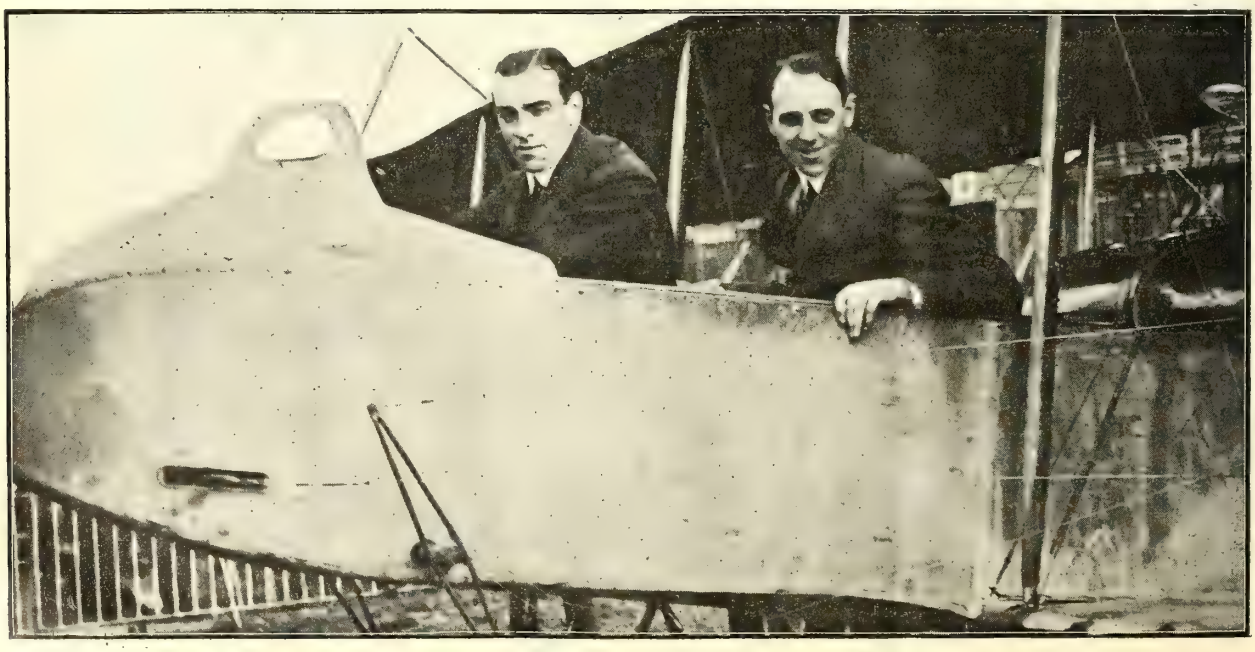
The writer was discussing this same problem recently with Mr. Sopwith, whose singular freedom from accident is undoubtedly largely attributable to the fact that he flies quite as much with his head as with his hands, and Mr. Sopwith advanced the theory that in the case of a machine side-slipping during a turn the proper thing to do is to rudder towards the inside of the turn.

Now in the case of our hypothetical left-hand turn, observe what would happen: The machine is already slipping downwards, and it is at the same time turning and going forwards; now if the rudder be pushed over to the left, and the left wing warped so as to give a lift, the rudder and head resistance of the wing are both tending to turn the machine more sharply, with the result that the increased centrifugal force will at once try to make the machine slip outwards. This outward slip will then counteract the downward slip, and give the machine a hold on the air, so that the pilot can regain control.

There is also this further effect of pushing the rudder over to the left, namely, that as the machine is falling sideways and going forward, while banked to what is presumably an extreme angle, the rudder is then so much out of the vertical that it acts partly as an elevator, and so holds the tail of the machine up, enabling it to get on to its gliding angle without having to get into the position of a dangerous dive.

At the same time, it is necessary to be wary as to how the elevator is used, for there is always the temptation to assist the nose of the machine downwards by elevating hard. Now it may so happen that, in the event of a side-slip occurring on a very sharp curve with a very big bank, the elevator may be so much out of the horizontal as to act in the vertical plane more like a rudder, with the result that if the lever is pushed forward to produce a dive, it may actually prevent the machine from taking the sharp curve intended, whereas if the lever is pulled back the elevator then acts as a rudder, tending to increase still further the sharpness of the curve.

As a matter of fact, this is how M. Garros executes the wonderful banked circle of which he is so fond. He simply throws the machine over to one side until it is at an angle something worse than 45 degrees, then pulls the *cloche* back, so that the elevator is pushing the tail of the machine outwards all the time, and forcing it to take a smaller and smaller circle. However, it is very few men who can do the Garros' circle, which after all is merely a circus trick, and it is questionable whether any other machine except the Blériot would do it, for it might not be possible in a machine with a cased-in body or a non-lifting tail, owing to the difference in the streamlines which



Mr. Claude Grahame-White and Mr. Richard Gates on the new Henry Farman at Hendon on Sunday.

would be set up. However, the point is that the safe thing to do is to rudder towards the side to which you are slipping, and get the nose of the machine down at the same time, while warping the inner or lower wing up as much as possible.

In any case, the result of the manœuvre is ultimately either a steep glide or a dive, and it is in this part of the operation that the majority of accidents occur. The writer knows of two or three cases in which Blériot pilots have been dropped nose first by a gust, and have been thrown forward on to the *cloche*, thus increasing the steepness and the danger of the dive, and in each case these pilots have been saved by the fact that over the top of the Blériot *cloche* there is a cross-bar in the fuselage on to which they have been pitched, so that the cross-bar, catching them across the wrists, has wrenched their hands off the *cloche*. They have then grasped the cross-bar to prevent themselves from being pitched out head first, and the machine, left to itself, has righted itself automatically.

Now this, of course, is exactly what every machine should do if properly designed and balanced. It is not every Blériot that would do it, because the balance entirely depends on the relation between the weight of the pilot and the angle at which the fixed tail plane is adjusted, but it shows that it is possible to make a machine which is practically automatically stable fore and aft.

Other pilots have said that under similar circumstances, either following a side-slip or in a simple drop, they have been pitched forward on to the lever or *cloche*, and have got the machine diving to such an extent that it was only by a great effort they were ultimately able, after some seconds of hauling on the lever as hard as they could, to get the tail of the machine down and the nose up. In fact, one pilot told the writer that he only managed to do so finally by taking his feet off the rudder bar—which was, owing to the vertical position of the machine, too far underneath for him to get a purchase on it—and pushing with his feet against a cross member of the fuselage which was higher up, and hauling the lever back for all he was worth. This happened on Salisbury Plain, where there was plenty of room to manœuvre, so that when once the machine was straightened out the pilot had time to recover his rudder bar and direct the machine's course as he wished without hitting anything, but in any ordinary aerodrome there would probably have been a horrible smash.

However, what the writer would like to suggest is that all machines should be fitted with a safety bar to provide against such a contingency. The safety bar should be placed across the machine in much the position of the present cross-stay in the Blériot fuselage, or possibly it might be even better to place it higher up and closer to the pilot. This cross-bar would be connected direct to the elevator, or else by a wire through guides to the upper of the elevator wires from the *cloche* or lever. In the event of an unexpected or unavoidable dive, if the pilot was thrown from his seat, he would at once be pitched on to the cross-bar, and so his weight would bring the elevator up, and the machine would get its tail down. In the case of a pilot being thrown sideways from his seat by a side-slip and then forward on to his control, as seems very probably to have happened in the late Mr. Fisher's case, instead of falling on his control he would fall on to the cross-bar, and the effort to raise the nose of the machine would then be applied just during those precious seconds when the pilot was endeavouring to push himself back into his seat, and before the machine had acquired that terrific diving speed which is undoubtedly liable to make a machine with a short fuselage get entirely out of control.

The proposed fitting is quite a simple one, it is likely to save life, it costs very little, and therefore, like safety belts and helmets, the writer does not expect to see it become general for some years to come, except that a few sensible men may have it fitted on their own account, just as a few very experienced men wear belts and helmets. He merely wishes to place on record that such an appliance ought to be fitted, and that a good many lives may be thrown away through not having some such device on the machine. But then, of course, pilots are fairly cheap, and such a fitting might interfere with the fitting of a new design of 7-32 in. bolt and nut devised with great mental pain by the acting-sub-assistant-deputy-works-manager at one factory or another, so, after all, perhaps it is hardly worth while considering the suggestion seriously.—C. G. G.

Mr. Charteris' View.

Since the foregoing article was written the following interesting letter has been received from Mr. Charteris, himself a pilot of considerable ability. He says:—"There have been several accidents due to sideslips lately, some of which have been, unfortunately, fatal, and the usual explanation that is given—*i.e.*, that the machine was over-banked—hardly appears satisfactory when it is realised that the accidents have frequently happened to experienced pilots who knew well the limits to which it was safe to bank their machines.

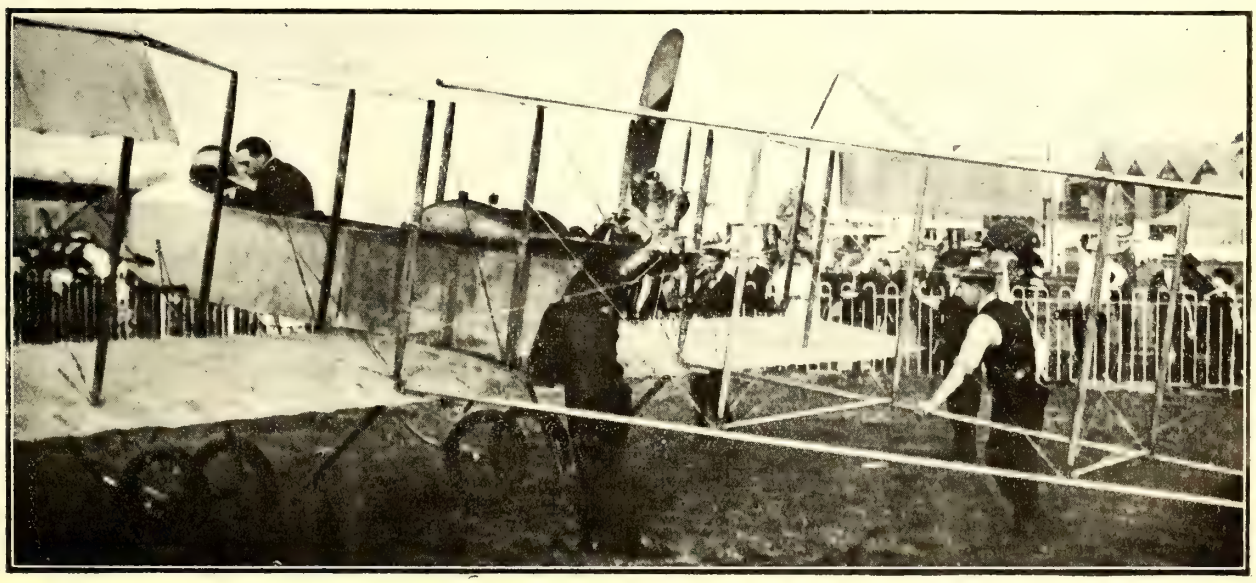
"Moreover, they had in some instances previously experienced sideslips on the same machines, which would have been sufficient warning to them had it merely been a case of over-banking.

"It seems necessary, therefore, to look for some other cause of the sideslips, and for some time I have believed that there is an explanation, but have not ventured to voice my opinion until last week, as a passenger, I had the experience of being brought to the ground by a sideslip in a manner which confirmed my views.

"I believe it to be common practice among many pilots, perhaps even the majority of monoplane fliers, to terminate a turn by means of the rudder only, without using the warp to assist in bringing up the inside wing. This practice, I believe, to be the cause of many of the sideslips of which we hear.

"When making a turn, the machine is banked so that the planes are at right angles to the resultant of the two forces, gravity and centrifugal, and the lift on the planes under these conditions is not vertical, but, as it should be, perpendicular to the planes.

"The turn is maintained by means of the rudder preventing the machine flying off at a tangent, which it does immediately the rudder is released. The change from turn to straight



Mr. Grahame-White getting ready for a flight on the new Henry Farman.

flight is absolutely instantaneous, and for a brief space of time the machine is travelling in a straight path with the planes at an angle of 30 or 40 degrees laterally. This must necessarily produce a tendency to sideslip on all machines, though on some the wing may come up before this occurs.

It seems apparent from the above that, previous to the rudder being released this bank ought, by means of the warp, to be in some measure released."

Dublin to Belfast and Back.

The Aero Club of Ireland intends to hold a race from Dublin to Belfast and back, under the competition rules of the Royal Aero Club, and offers the following prizes: £300 first prize, £75 second prize.

The following are the more important rules:—

1. The winner will be the competitor who accomplishes the distance between Dublin and Belfast and back in the shortest time.

2. The contest will take place on Monday, September 2nd, 1912 (with power to postpone to first, second, or third day following in case weather unsuitable).

3. No entry fees will be charged.

4. Entries, which must be made by the competitor himself upon the official form, to be obtained from the Secretary, will be received up to August 12th, 1912, after which date no entries can be accepted.

5. All entry forms must be sent to the Secretary, Aero Club of Ireland, 35, Dawson Street.

7. Compulsory resting time at Belfast. Competitors, on arriving at the Belfast control, must remain there half-an-hour. Any time spent in the control beyond the half-hour will be counted as flying time.

8. The return flight shall be from the same ground in Belfast to the same ground in Dublin.

9. Landing *en route* will be permitted.

13. There must be at least three starters or no second prize will be awarded. If less than three, the first prize money may be reduced at the discretion of the committee.

14. The committee also reserves to itself the right to postpone or cancel the contest should it be found on August 25th that the number of probable competitors is, in the opinion of the committee, insufficient to justify it in carrying out the contest.

15. The contest is open to all competitors holding an Aviator's Certificate issued by the International Aeronautical Federation and duly entered on the Competitors' Register of the Royal Aero Club.

16. Repairs.—Individual replacements and repairs to the aeroplane and motor may be made, but neither may be changed as a whole.

17. Shed Accommodation.—Accommodation for his aeroplane will be provided free to each competitor from 9 a.m on Friday, August 30th, 1912.

While the committee cannot undertake to pay the expenses of competitors, it is their intention to pay out of the profits derived from the contest, after deduction of all expenses, exclusive of prize money, such sum as they shall decide towards the expenses of each competitor. In no event shall each competitor receive more than £40 towards his expenses

Ireland has had few opportunities of seeing men fly, but what flying there has been was of high excellence. The Leopardstown meeting, despite unfavourable weather, was managed in a manner which might be adopted with success in other parts of the world; and Mr. Ferguson and Mr. Corbett Wilson have proved that Ireland can supply aviators at home.

It is to be hoped that neither Leopardstown nor any place along the south shore of Dublin Bay will be used as a starting and finishing place. The proximity of the Dublin Mountains would make any place along that coast a death-trap in the south-west winds which usually prevail in the summer. On the other hand, the flat open country about Sutton and Baldoyle, or even by the Phœnix Park racecourse, would be almost ideal in any direction or strength of wind.

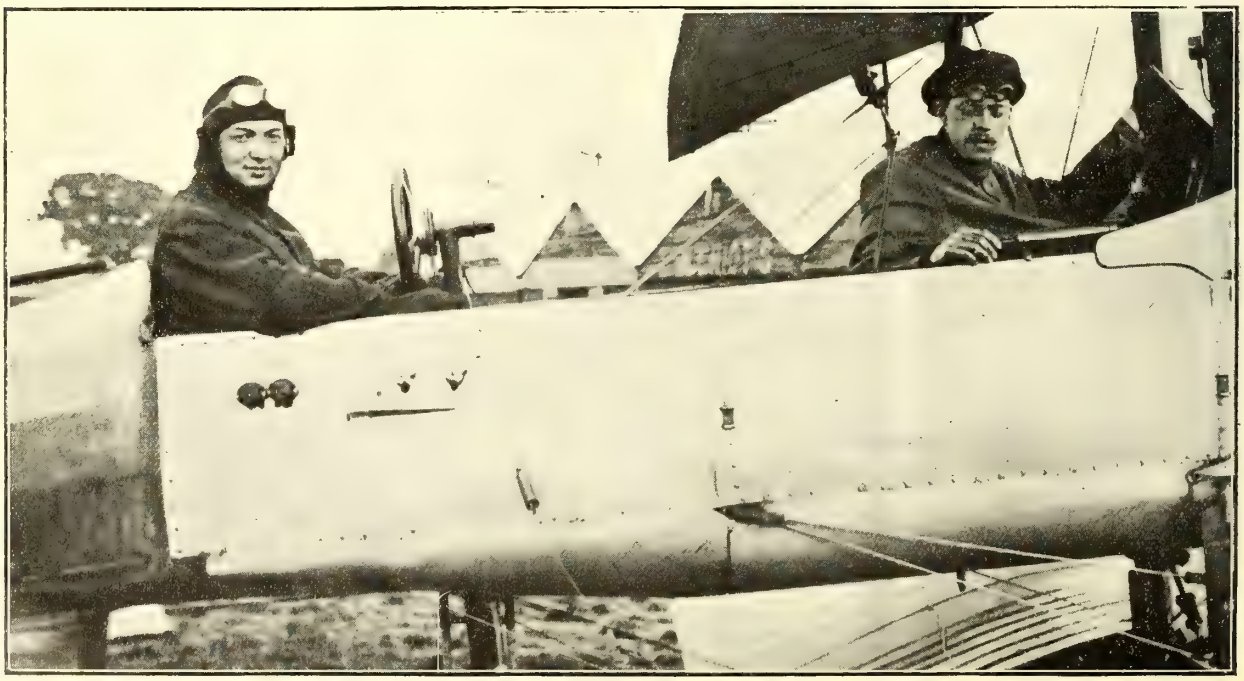
The date selected is bad, as it only gives two days for pilots to get to Ireland after the Military Competition on Salisbury Plain. At least a full week later would be much preferable, and a Saturday would doubtless be a more profitable day.

Dundalk might well be specified as an intermediate stop, for thousands of country people would flock to see the sport who could not get to Dublin or Belfast.

However, under the hand of Mr. White, one may rest assured that things will be thoroughly well done.

Finance and Aviation.

It is extremely encouraging to find so sound a paper as the *Financial World* beginning to draw definite attention to aviation. Mr. Thorburn of that paper is most keenly interested in flying, and the result is shown in an exceedingly sensible article on the desirability of business men taking an interest in aviation ventures. In the course of his article Mr. Thorburn says: "The construction of aeroplanes is a matter which it is essential should be in the hands of large and substantial firms. The advantages enjoyed by a well-equipped and financed company will be obvious, and we anticipate, therefore, that investors will in the near future have many opportunities of joining in the great industry which is as yet only in its initial stages. It is for them to discriminate between sound and unsound flotations, but with due caution and some technical knowledge there are opportunities for handsome profits."



M. Moineau, the crack Bréguet pilot, with a passenger at Hendon on Sunday.

The Week's Work.

MONDAY, July 8th.

Brooklands.—At Sopwith School, Mr. Bell out in evening on Burgess-Wright with Mr. Lane.

At Vickers School, Capt. Darbyshire and Mr. Knight straights on *No. 5*.

Bristol School.—Mr. Hotchkiss out alone, then with Lieut. Waldron. Lieut. Bulkeley passed for brevêt, flying whole time at about 400 ft., taking an average time of about 17 mins. for each test. Then Lieut. Anderson on same machine for brevêt, flying good course in spite of very choppy wind. Lieut. Anderson took a little longer than Lieut. Bulkeley, averaging about 19 mins. for each flight, and landed each time a very few feet off the mark, thus two brevêts in one morning. Mr. Hotchkiss up behind Lieut. Waldron. Major Higgins and Capt. Macdonell rolling. Mr. Hotchkiss then up with Lieut. Hope.

At Deperdussin School Capt. Dawes on brevêt machine doing good straights for half hour. In evening, Lieut. Gill doing circuits.

Birmingham.—Mr. B. C. Hucks, flying from Birmingham to Wolverhampton, only 10 miles, had to come down at Sedgley owing to valve trouble. Gave fine exhibition before leaving Birmingham, doing spiral glide from 3,000 ft.

Eastchurch.—Lieut. Gregory, R.N., out on Etrich monoplane doing several circuits, but, unfortunately, broke propeller when landing owing to fouling wire fence.

Farnborough.—Mr. Cody testing monoplane, descended in clearing between Farnborough Common and Laffan's Plain, and unfortunately alighted on a cow. Cow expired suddenly and machine was badly broken. Feared that it will not be ready in time for Military Competition, which is exceedingly hard luck on Mr. Cody. Fortunately pilot himself unhurt, which, after all, is the most important, as we cannot spare Mr. Cody for a long time yet.

Folkestone.—Mr. Grahame-White on Farman hydro-aeroplane reached Folkestone, gave sundry exhibition flights, and starting for Hendon in the evening got as far as Sidcup with three stops owing to engine trouble; left machine there for night.

Hendon (Grahame-White School).—Foggy morning. Mr. Lewis Turner out at 2.55, doing a test circuit on *No. 7*, and Captain Salmond followed by doing circuits on same machine. Then fog thickened, and no further work till 5.20, when Mr. Turner took out Howard Wright for test. Finding conditions favourable, he advised Mr. Kershaw to go for his brevêt, which he did. His second flight was surprising; the observers signalled to him after his first circuit that he had got his height, but he misread the signal, and the more they waved the higher he climbed, finishing at 600 ft.

At Deperdussin School, Mr. Sabelli flying with skill. All pupils out in evening; Messrs Brock and Harrison and Lieut. Reilly showing excellent progress.

At W. H. Ewen School two new pupils, Capt. A. K. O'Brian and Mr. Eric Conran out for the first time and made wonderful progress. Capt. O'Brian made straights in good style, while Mr. Conran also did very well. M. Baumann out on "Dep." for three circuits, but engine not pulling well so landed with nice *vol plané*. M. Dubois also out on "Dep."

Lincoln.—Mr. Ewen arrived at 9 p.m., after fine flight from Peterborough, practically in dark, damaging chassis slightly in doing so through landing in corn field; had to descend previously at Scopwick, nine miles from Peterborough, to find way, but did so without much trouble. Mr. Ewen twisted his ankle in his final landing, but not much the worse.

Manchester.—Lieut. Parke, R.N., gave final display on Avro, which has aroused special interest in Manchester owing to the Bros. Roe, the builders of the Avro, being natives of the district. Wind very strong all day, but delightful in evening, so Lieut. Parke put up three splendid flights, first being in stiff wind going up to 3,000 ft. and doing spiral *vols plané*, figures of eight and fancy flying. Crowd frantic with delight and shouldered him to enclosure at conclusion of flights. Everybody very pleased and many hundreds remained after the flights to get signatures of pilot and the Bros. Roe.

The Plain (R.F.C.).—Captain Brooke-Popham two good flights on Avro. Capt. Burke left for Farnborough on *B.E.3*, taking Sapper Mullins as passenger. Journey done in 45 mins. Capt. Burke, before starting for Farnborough, out on *B.E.3*. Lieut. Mackworth afterwards took over *B.E.3*, making a short flight before starting for Farnborough, and got there also in 45 mins. Capt. Hamilton two good flights on Deperdussin. Lieut. Fox on *F.7*. four flights, two with Air Mechanic Strugnell and one with Air Mechanic McCudden. Later Air Mechanic McCudden took the machine out by himself, and flew remarkably well for first time.

The Plain (Bristol School).—In evening, Mr. Pizey with Geoffrey England as passenger on biplane No. 19, reached Brooklands without stop. Mr. Busteed tuition to Capt. Lucina and Major Ashmore; Mr. Harrison taking Major Ashmore, Mr. Lywood, Capt. Lucina and Mr. Featherstone. Work on monoplanes by Messrs. Campbell, Greig, Barnwell, Pickles and England. Mr. Pizey with Capt. Lucina, Major Ashmore and Lieut. Brophy, Mr. Gordon England with Capt. Lucina and Mr. Lywood. Mr. Pizey a trial on monoplane, Mr. Geoffrey England round Fargo, landing well. Mr. Lister on biplane. Mr. Rawson Shaw passed for certificate, observed by Capt. Brooke-Popham and Mr. Smith Barry. Mr. Busteed for fine flight on two-seater monoplane.

Southport.—Enthusiastic reception of Mr. Slack, I.C.S. Educational pilot, arriving from Manchester in full gale.

Windermere.—H.M.S. *Deperdussin*, monoplane with floats, out running about slowly, developed no very serious complaints.

TUESDAY, July 9th.

Brooklands.—At Sopwith School, in evening, Mr. Sopwith out on new biplane and then on Coventry Ordnance biplane with full load (42 galls. petrol, 12 galls. oil, and passenger) for short trial. Load appeared to make no difference to machine, which flew several circuits in fine style. Excellent prospect for Coventry II, which Mr. Howard Wright and Mr. Manning regard as considerably better. Mr. Copland Perry, late pilot of Royal Aircraft Factory, joined Mr. Sopwith's establishment and made excellent flight on Burgess-Wright for first attempt on new type.

At Vickers School, *No. 5* out with Capt. Darbyshire, and Messrs. Hunter and Knight for straights.

Mr. Eric Pashley's Sommer, lately belonging to the Universal Aviation Co., Ltd. (in liquidation), out in evening, making several good circuits.

Bristol School.—At 4.20 a.m., Mr. Merriam alone, then with Lieut. Waldron, latter afterwards taking complete control, with Mr. Merriam behind. Mr Merriam then with Lieut. Hope. Major Higgins alone for first straight line, but made a mistake in landing and broke undercarriage; flew quite well, and it was sheer bad luck that this little accident happened. In evening Mr. Hotchkiss out alone, then with Lieut. Waldron. Mr. Merriam with Lieut. Hope and Mr. Summerfield. Mr. Pizey, with Mr. England on school biplane, arrived from Salisbury complaining of strong head wind. Mr. Hotchkiss then went up in newly arrived biplane with Lieut. Hope. Mr. Pizey afterwards up and took a pupil of the school.

At Deperdussin School, Lieut. J. C. Porte, R.N., on two-seater, flying for 40 minutes in fine style, terminating with splendid *vol plané*.

Eastchurch.—In early morning Capt. Gordon, R.M.L.I., did several straights on Short monoplane.

Hendon (Grahame-White School).—Bright evening, with puffy wind, but school in full swing. At 7.30, Lieut. Rathbone doing straights on school "bus" (*No. 7*) with M. Noel in passenger seat, and Mr. Lewis Turner out on the Howard Wright for test flight. Then Mr. Cholmondeley on *No. 7* with M. Noel and Mr. Turner up with passenger. This followed by Captain Nicolas, doing solo straights on *No. 7*, and Mr. Turner taking new pupil, Lieut. D. Allen, on Howard Wright. The latter had exciting introduction to the joys of flying, as Mr. Turner had to make a landing in the rough, to avoid another machine, and the chassis of the Howard Wright collapsed. Pilot and passenger got off without even a shaking

M. Noel now sat as guardian angel to watch Capt. Salmond's control, and afterwards sent the latter for solo straights, which he did very well.

After this, Mr. Hoelscher and Lieut. Allen were out, also on *No. 7*, while Mr. Roupell was practising rolling on the 35-h.p. Blériot.

At Deperdussin School, pupils practising. Lieut. Reilly and Messrs. Harrison and Brock now making circular flights; Capt. "X" also progressing. Mr. Sabelli out on No. 1 machine.

At W. H. Ewen School start made at 5 a.m. Mr. Ware several circuits on Blériot at 10 feet, and is now ready to go on brevêt machine. Mr. Edmund made several straight flights on Blériot, and is also ready to go on brevêt machine. Mr. G. H. James making straight rolls and hops while Mr. H. James making good straights. Capt. O'Brian and Mr. Conran good straights with tail well up.

At Bleriot School.—Although several pupils on the ground

at 4 a.m. prevailing mist did not disappear until 5 o'clock, when Messrs. Hall, Sacchi, Aubert, Gandillon, Teulade and Clappen were all able to put in good work. M. Aubert was up first and did second half of brevet test getting up to good altitude. Mr. Hall did circuits, ready for figures of eights, and Mr. Sacchi straights. Mr. Teulade did straights and then a circuit. Mr. Clappen two straights and Mr. Gandillon getting on well did two rolls on No. *L.B.1.*

Liverpool (Waterloo).—Messrs. Hardman and Birch took it in turns to make long straights between Hall Road and Seaforth in strong north wind.

Portsmouth.—Excellent flights over Naval Review by Commander Samson, R.N., on *S.41.* (officially *H.1*), and Lieut. Spencer Grey, R.N., on *S.43.*, otherwise *H.5.* Machine of latter with 70-h.p. Gnôme not lifting well, apparently due to engine and propeller trouble, Lieut. L'Estrange Malone, R.N., on ancient *S.38.*, launched again from "scenic railway" on H.M.S. *London*; good flight, but machine obviously under-powered, though pilot reached considerable height. Later in day, *S.38.* seriously smashed in attempt to get her on board H.M.S. *London* in choppy sea, lighter bumping against side of warship and collapsing wings of aeroplane.

M. Verrier on Maurice Farman with photographer arrived from Shoreham, which he had reached on Sunday night, flew over Review in splendid style and back to Hendon, in London.

The Plain (R.F.C.).—Captain Brooke-Popham out on Avro doing three flights. Two of these with Capt. Hamilton and Sergeant Ridd as passengers. Capt. Hamilton on Deperdussin, flying well, doing three flights. Air Mechanic Strugnell on *F.8*, flying very well to begin with. Lieut. Fox on *F.7.*, taking up Air Mechanic McCudden as passenger. Later Air Mechanic McCudden four good flights alone on same machine. Lieut. Fox again three flights, taking up Air Mechanic Strugnell one flight. Later Strugnell three flights alone, flying very well. Capt. Hamilton on Deperdussin four flights.

The Plain (Bristol School).—Mr. Pizey tuition to Capt. Lucina, Major Ashmore and Mr. Lywood; Mr. Harrison to Major Ashmore, Mr. Lywood, and Capt. Lucina. Mr. Lister two good solos. Mr. Harrison out on Anzani-engined monoplane, after which Messrs. Greig, Barnwell, Geoffrey England, and Pickles on same. Three hours' continuous flying done.

WEDNESDAY, July 10th.

Brooklands.—At Sopwith School, late in day, couple of hair-raising circuits in evening wind by Mr. Copland Perry, on Burgess-Wright.

At Flanders School, early, Mr. Raynham testing new War Office monoplane, flying for half an hour, and machine behaving excellently.

At Vickers School, *No.* 5 out as usual.

Bristol School.—4 a.m., Mr. Hotchkiss with Lieut. Waldron, Lieut. Hope, and Capt. Macdonell. Mr. Merriam with Mr. Summerfield. Mr. Holyoake up alone. Capt. Macdonell taxying with occasional hops. Mr. Hotchkiss behind Lieut. Waldron two circuits, Mr. Holyoake again straights, Mr. Merriam then with Lieut. Hope.

6.30 p.m., Mr. Hotchkiss out on school biplane testing propellers, but wind far too high for school work.

At Deperdussin School, Lieut. Porte, R.N., circuits on two-seater at a good height.

Dover.—Mr. Chalmers had trial flight with experimental engine, and when up about 150 ft. engine failed and he came down without any personal injury.—H. H. V.

Eastchurch.—Capt. Gordon, R.M.L.I., out on Henry Farman taking as passengers Messrs. Oswald Short, Fowler, and others, but eventually had engine trouble and had to make a forced landing, which was successfully accomplished.

Hendon (Grahame-White School).—Wednesday morning was a chapter of those minor accidents which do so much towards making the aviator what he undoubtedly is—a monument of patience and a master of abuse.

Lieut. Rathbone out with Mr. Travers at 4.2 a.m., and a tyre promptly burst. This repaired by 5.0, and Mr. Travers made test. Later Lieut. Rathbone again piloted, with Mr. Travers in passenger-seat, and on returning found *two* tyres flat, and control-wire frayed. This repaired by 6.50, and Capt. Salmond out for solo straights, and then Mr. Hoelscher with Mr. Travers. But by this time (7.15) wind so strong that school shut down.

In evening, M. Noel twice went up for tests, but on each occasion found too much wind for pupils.

At Bleriot School, Messrs. Hall, Sacchi, Teulade, and Clappen on ground by 5 a.m. and all did good work on *L.B.2*, Messrs. Hall and Teulade each doing three straights and Messrs. Sacchi and Clappen one each. Wind then stopped work.

The Plain (Bristol School).—In the morning all the pupils and staff out. In evening Mr. Harrison teaching Capt. Lucina, Major Ashmore and Mr. Lywood. Messrs. Greig, Barnwell, Pickles and England out on monoplane.

Windermere.—Deperdussin having another day of running about.

THURSDAY, July 11th.

Brooklands.—At Sopwith School, early, Messrs. Lane and Hedley out on Burgess-Wright. In evening, Mr. Perry took out Burgess-Wright for test and then handed over to Mr. Powell, who made his test flights for brevêt, putting up two of the best ticket flights yet seen at Brooklands and landing on both occasions within five yards of observers, this being his first flight alone on this machine. Mr. Perry then out on Wright with Mr. Lane and Mr. Howard Wright.

At Martin-Handasyde, Antoinette-engined machine out in afternoon with Mr. Bell testing propeller. Distinct improvement, but windstick not altogether satisfactory. Later out again, alone and with passenger.

At Flanders School, Mr. Raynham out on new military for a few circuits, and then left for Farnborough, arriving safely.

At Percival School, new Caudron biplane appeared and made several straight flights with Mr. Percival. Lieut. Parke, R.N., then tried machine for four straight flights.

At Vickers School, Mr. Macdonald out on *No.* 5, starting from bottom end of ground, with apparent intention of extending the length of Vickers straight flights to Brighton. However, turning somewhere on the road he returned in about 10 minutes.

Mr. Eric Pashley out on Sommer making straights and one circuit.

Bristol School.—4.30 a.m., wind still high, but Mr. Merriam made solo and then took Lieut. Hope and Lieut. Wilmer for straights. In evening Mr. Merriam solus, then with Major Higgins and Mr. Summerfield, Mr. Holyoake, Capt. Macdonell, Lieut. Hope, Lieut Waldron, and Lieut. Wilmer.

At Deperdussin School, Lieut. Gill 15 mins., and coming down in a fine *vol plané*.

Bournemouth.—M. Fischer, with Mrs. Holt Thomas and Mme. Fischer on board, arrived from Southampton, coming round pier machine alighted, struck a wave, floats and chassis struts collapsed, and machine settled down nose first, owing to repairs done roughly a few days before. Fortunately, machine sank into water slowly, and passengers were rescued with nothing worse than wetting, though a more sudden nose dive might have held them all under water.

Eastchurch.—Capt. Gordon, R.M.L.I., out on Henry Farman, taking passenger, and with resumed engine trouble was again forced to land, this time slightly damaging landing gear owing to confined space for landing. Lieut. Gregory, R.N., flew over on school machine to find out cause of descent.

Hendon (Grahame-White School).—No work in morning; evening too windy, though all pilots in turn took machines out to test.

At Deperdussin School, Messrs. Brock and Harrison straights. Later, Mr. Sabelli tried No. 1 machine and passed it to Lieut. Reilly, who did two circuits and two figures of eight and passed successfully half of certificate test.

At W. H. Ewen School in evening. Messrs. Ware, Conran, G. James, H. James, and Lawford all making good progress, while Mr. Sutton was rolling well but found the engine troublesome.

Liverpool (Waterloo).—Mr. Hardman had machine out twice for an hour each time practising straights and landing. Mr. Melly also was out for trial on school machine.

The Plain (R.F.C.).—Capt. Brooke-Popham on Avro with Lieut. Thompson, Air Mechanic Lewis, and another person, after which one flight alone. Lieut. Fox on *F.7.* three flights, in one taking up Air Mechanic Hobby. Sergt. Ridd on *F.7.*, after which Air Mechanics Strugnell and McCudden one flight each.

Windermere.—First flight of Deperdussin straight of about 3 miles.

Wolverhampton.—Mr. Hucks arrived from Sedgley in early morning. In afternoon made magnificent exhibition flight on Blériot, disappearing in clouds and coming down from 2,000 ft. in fine spiral glide. 4.30 left for Derby, and did the 40 miles there in 40 minutes.

FRIDAY, July 12th.

Brooklands.—At Sopwith School, early, Mr. Gordon Bell, with Mr. Charteris, started on tractor-biplane with intention of flying to Cowes. After turning at bottom end of ground with a fair bank, machine came off the turn without losing the

bank, and proceeded to slide down sideways. Machine came to rest across dyke in sewage farm, more or less resolved into molecular particles. Both occupants unhurt.

At Percival School, early, Mr. Percival out on Caudron making circuits.

At Spencer School, evening, Mr. Spencer out alone and with lady passenger.

At Vickers School, Capt. Wood rolling on *No. 5*.

Mr. Eric Pashley out in evening on Sommer.

Bristol School.—3.45 a.m., Mr. Hotchkiss alone, then with Lieut. Waldron, Major Higgins, Lieut. Hope, and Capt. Macdonell, latter for straights alone. Mr. Holyoake alone flying straights and afterwards two circuits in really good form. Mr. Hotchkiss again with Lieut. Hope, Major Higgins, Mr. Holyoake, and Lieut. Hope. At 7 p.m., Mr. Hotchkiss alone and in difficulties all round through weather. At 7.45, Mr. Merriam up with Mr. Summerfield. Mr. Hotchkiss with Capt. Boger for couple of circuits.

About 7 p.m., M. Pierre Verrier arrived from Hendon on Maurice Farman, with Mr. Greswell as passenger.

Hendon (Grahame-White School).—Another abusive morning. Pilots out at 4.40, but in getting out one aileron caught by a hanging rope, and repairs not complete till 6.20, when Mr. Travers just had time to do "guardian angel" to Mr. Cholmondeley, after which wind rose. In evening, Mr. Wynne doing straights on *No 7*, and Lieut. Rathbone enjoying passenger straights. Then an hour and a half's delay for wind, after which Mr. Noel took Baroness Schenk for a passenger flight. After this M. Hoelscher, Mr. Cholmondeley and Lieut. Allen out with M. Noel in the passenger seat.

At Deperdussin School.—Lieut. Reilly finished brevêt flights in excellent style. Capt. "X" showing great improvement in rolling. Messrs. Brock and Harrison doing straights.

At W. H. Ewen School, at 5 a.m. Capt. O'Brian, Messrs. Conran and G. H. James still continue to make excellent progress. M. Baumann out on "Dep.," but found the wind very tricky and landed, as usual, in excellent style.

Liverpool (**Waterloo**).—Messrs. Hardman and Birch again straights in strong northerly wind. Mr. Hardman to height of 80 ft.

Nuneaton.—Despite very gusty wind, Lieut. J. C. Porte, R.N., out on two-seater and in presence of large crowd made some flights and landed in good style, although fields very small.

Southport.—Flight by Mr. Slack to Fleetwood and back in very bad weather.

The Plain (**R.F.C.**).—Sergt. Ridd on *F.7.*, after which Lieut. Fox made three good flights. Later Air Mechanic McCudden did two flights on *F.7.*, followed by Air Mechanic Strugnell. Capt. Hamilton on Deperdussin four good flights. Capt. Carden out on the Dunne doing solos. Lieut. Fox on 70 h.p. Blériot making three flights, one flight of 63 minutes. This long flight was for his superior brevêt, having to go to Weymouth, but while going there he came into a storm, so had to return to hangars. Capt. Brooke-Popham out on *F.7.*, being followed by Sergt. Ridd and Air Mechanic McCudden, on two flights. Lieut. Fox on *F.8.* after which Sergt. Ridd made one flight.

The Plain (Bristol School).—Mr. Harrison out alone in evening, and then teaching Capt. Lucina and Messrs. Brabazon, Cheeseman and Lywood. Mr. Busteed on two-seater monoplane. Messrs. Gordon England and Pixton both out on tractor biplane.

Windermere.—Deperdussin made one long straight, after that circuits for about half an hour.

SATURDAY, July 13th.

Brooklands.—At Percival School, Mr. Percival and Lieut. Parke, R.N., out on Caudron, flying extremely well.

At Vickers School, early, Mr. MacDonald out for several circuits on *No. 6*. In evening, after racing, out again with a passenger, machine lifting easily, and evidently very fast.

In afternoon, Mr. Spencer made a circuit or two, and Mr. Bell showed off on the Martin-Handasyde, while M. Verrier astonished the inhabitants by treating the 50-ft. span Maurice Farman like a kittenish edition of the Burgess-Wright. For once in a way the weather was propitious and the cross-country handicap was commenced within five minutes of the advertised time. The starters in order were: Mr. Eric Pashley (Sommer), Mr. Spencer, Mr. Hotchkiss (Bristol), Lieut. Parke, R.N. (Caudron), Mr. Copland Perry (Burgess-Wright), M. Verrier (M. Farman), and Mr. Bell (Martin-Handasyde). The handicapping, unfortunately, was not up to the high standard so far seen at Brooklands. The Martinsyde, giving the M. Farman 3 secs., passed her within the ground.

At the end of first lap, Mr. Hotchkiss was leading, but landed owing to engine trouble; the Burgess-Wright and the Martin-Handasyde were 4th and 5th, having overtaken Lt. Parke on the Caudron. The Martin-Handasyde, however, had to land from engine trouble at the end of first lap, and in the finish the Burgess-Wright won easily. Mr. Pashley's Sommer and the Spencer running very close together as second and third, and the Maurice Farman and Caudron bringing up the rear, the pilot of the former losing his way and much time at the turn.

The handicappers were themselves handicapped by the presence of three machines whose speeds were unknown, and the existence of a steady, but quite strong, wind helped to spread out the competitors. Nevertheless, the spectators, of whom there were an unusually large number, were interested by new machines and excellent flying. After the race, Mr. Perry on Burgess-Wright, Mr. Gordon Bell on Martin Handasyde, and Mr. Macdonald on Vickers *No 6*, gave exhibition flights, and the Bristol and Sopwith schools, proceeding with their usual vigour, added to the interest of a most successful flying day.

Bristol School.—4.15 a.m., Mr. Hotchkiss out alone and found wind beautifully steady, so commenced school work in earnest. Mr. Merriam took up Lieut. Hope; Mr. Hotchkiss behind Major Higgins. Lieut. Wilmer flew alone for straights and circuits. Mr. Holyoake alone for good circuits. Capt. Macdonell alone for straights; Mr. Merriam with Lieut. Hope; Mr. Hotchkiss with Major Higgins; Lieut. Wilmer again alone; Capt. Macdonell again good straights. In evening Mr. Hotchkiss for cross-country race, but landed after first lap through engine trouble. Mr. Merriam with Mr. Summerfield; Mr. Holyoake circuits alone. Mr. Merriam then with Mr. Bettington on biplane. Mr. Holyoake alone for circuits. Mr. Hotchkiss with Mr. Hitchcock and Lieut. Atkinson.

At Deperdussin School, Lieut. Gill made circuits at good height.

Dover—Commander Samson on Short hydroplane 41, arrived and alighted in the naval harbour. Crowds of people went to look at the machine, which is the first ever seen in Dover.—H. H. V.

Eastchurch.—Local thunderstorm atmosphere proved so "bumpy" that machines that did leave the ground for a flight (a Wright and a Short biplane) were obliged to make a hasty return.

Hendon (Grahame-White School).—Busy morning; Mr. Travers out at 4.53 with Mr. Cholmondeley. Then Capt. Salmond up for 10 minutes doing circuits of excellent quality, after which Lieut. Rathbone out with Mr. Travers, unfortunately breaking radius-rod owing to a landing while drifting. At 6.5 Mr. Hoelscher made his first solo flight, and tried to land some six feet up, but owing to special chassis construction of school machine did no more than break a wire or two.

Later, at 10.15, Mr. Desoutter up for one and a half hours on the old "Gordon-Bennett" Blériot, practising for afternoon.

Remainder of Saturday's flying reported elsewhere.

At Deperdussin School, pupils practising as usual. In afternoon Mr. Sabelli made several flights and took part in the different speed handicaps. With his miniature Deperdussin he easily overcame his different opponents and successively won a 1st and a 2nd prize.

At W. H. Ewen School, Mr. G. H. James doing rolls, then straights. Mr. Ware then took over machine and did circuits in nice style. Mr. H. James doing straights, but got into rough ground and slightly damaged chassis.

At Blériot School.—5.30 a.m. weather quite good, Messrs. Sacchi, Hall and Clappen each doing two straights on *L.B.2.*

Hull.—Exhibition flights by Mr. Hamel on 50-h.p. Blériot round the city and out over the Humber, coquetting with ferry-boats, and generally surprising the population.

Manchester.—Fine flights by Mr. Grahame-White on big 70-h.p. Farman, followed by banquet in evening, where most enthusiastic reception was given to hero of the day and his newly-made bride, who graced the occasion with her presence.

Mansfield Mr. Hucks arrived from Derby 20 miles in 20 minutes. In the course of exhibition competed with motor car and flew a kilometre in 30 seconds, equal to 76 m.p.h.; evidently a good following wind.

Nuneaton.—Weather slightly better. Lieut. J. C. Porte, R.N., made several flights at great height, showing the fine two-seater Deperdussin at its best and greatly interesting numerous spectators by clever handling of this machine, earning a well deserved success.

The Plain (**R.F.C.**).—Sergt. Ridd on *F.7.*, after which Lieut. Fox on Blériot. Lieut. Fox flew for his superior brevêt on *F.8.* to Cheltenham and back, again having rough weather for it. Capt. Hamilton on Deperdussin for his superior brevêt, having to fly to Weymouth and back. Whole of way he had to steer by compass, but completed his hard task. Later Lieut. Fox out

on *F.7* doing two flights, after which Air Mechanic Strugnell two flights. Later Lieut. Fox another flight, this time out as passenger. Air Mechanic McCudden passing first half certificate.

The Plain (Bristol School).—Mr. Lister passed for certificate, but rain prevented further work.

Windermere.—Deperdussin making circuit for short time in evening. Mr. Gnosspelius' machine out, did some straights, new float seems to answer all right in spite of rather radical alterations. Floats no heavier and much stronger.

SUNDAY, July 14th.

Brooklands.—At Sopwith School, early, Mr. Copland Perry out on Burgess-Wright with Messrs. Lane and Powell.

At Hanriot School, early, Mr. Sabelli took out 50-h.p. Gnôme Hanriot for half an hour, flying this in the excellent style one would expect from him when in charge of modern high-powered machine. The afternoon and evening were extremely hot, and *remouy*, bupt about 5 p.m. Mr. Percival came out on the Caudron, flying several circuits and landing with a good *vol plané* from about 500 ft. Half an hour later Messrs. Spencer, Hotchkiss (Bristol), and Bell (Martin-Handasyde) came out for trial flights.

Bristol School.—6 p.m., Mr. Hotchkiss exhibitions, then took up Mr. Hudson and flew in speed contest. Mr. Merriam with Mr. Summerfield and Major Higgins.

In the first heat of speed handicap, Lieut. Parke, R.N., on Mr. Percival's Caudron, Mr. Perry on Burgess-Wright, and Mr. Bell on Martin Handasyde, started in order named, Mr. Perry winning easily, with Lieut. Parke second. In the second heat, Mr. Spencer and Mr. Hotchkiss (Bristol) took part, Mr. Spencer winning.

In the final, Messrs. Spencer, Perry, and Lieut. Parke started. Mr. Spencer, with the race well in hand, banking close to the ground, touched a wing tip and was unable to proceed, Mr. Perry winning by about 30 secs. from Lieut. Parke, and adding a further success to the already considerable number already gained by the A.B.C. engined Burgess-Wright. After the race, Mr. Sopwith on Wright, Mr. Perry on Sopwith-Farman, Mr. Hotchkiss and Mr. Lawrence on Bristol, Mr. Gordon Bell on Martin-Handasyde, Lieut. Beattie on *Vickers 5*, and Mr. Macdonald on *Vickers 6*, provided an excellent show to conclude a most interesting week-end's flying.

Lancaster.—Mr. Slack arrived from Southport in fine style.

Liverpool (Waterloo).—Mr. Birch out making straights and partial turns in fairly strong wind at nearly 80 ft.

Mr. Melly took out 2-seater, and after balancing machine with piece of lead, went for a solo flight round Liverpool, distance being about 34 miles, which he covered in 40 minutes, maximum height 1,700 ft. Just before crossing Mersey the engine fainted away, and he had to plane down, but after descent of 200 or 300 ft., he discovered that nothing more serious had occurred than petrol tap shutting itself off. Flight from one end of dock to other, 1,500 ft. above the river was a very slow performance, being at that time 25-mile wind blowing in higher atmosphere.

Nuneaton.—Lieut. J. C. Porte, R.N., again out. Weather much better, so did even more flying than on previous day.

St. Albans.—Mr. H. J. D. Astley on Mr Grahame-White's Blériot arrived from Hendon, and after taking tea with some friends flew back again.

The Plain (Bristol School).—In afternoon, Mr. Busteed out on two-seater monoplane. Mr. Harrison for trial, afterwards Mr. Campbell for solo. Mr. Smith-Barry taking Messrs. Geoffrey England and Jennings. Mr. Harrison with Mr. Lywood and Major Ashmore.

Mr. Busteed again out on monoplane. Mr. Gordon England on tractor biplane.

The Reported Death of M. Hubert Latham.

It is announced as this paper goes to press that M. Hubert Latham was killed on June 7, while hunting in the French Congo. The report states that he was killed by a wild buffalo, but no details have yet arrived. In the absence of confirmation one can only hope that the statement is untrue.

Captain Loraine's Funeral.

In the churchyard of Bramford, near Ipswich, the body of Captain Eustace Broke Loraine, Grenadier Guards, who was killed at Stonehenge, was laid to rest on Wednesday last. The coffin was placed upon a gun-carriage, furnished and escorted by the 114th Battery Royal Field Artillery. It was preceded by the King's Company of the Grenadier Guards, under the command of Captain R. H. Hermon-Hodge, and following the gun-carriage were Colonel R. Scott-Kerr, officer commanding Grenadier Guards, representing his Majesty the King; Colonel Sir Edward Ward, Permanent Under-Secretary of State for War, representing Colonel Seely, Secretary of State for War; Rear-Admiral Sir Lambton Loraine, the deceased officer's relatives, and representatives from the Grenadier Guards and other regiments.

Eight of the non-commissioned officers of the Grenadier Guards bore their late officer's body into the church, where the burial service was conducted by the Rev. E. Broke.

Among the mourners were Rear-Admiral Sir Lambton Loraine, Lady Fairbairn, Mr. Percy Loraine, Miss Isaura Loraine, Lord de Saumarez, Lieut.-Colonel H. E. Rhodes James. Lady Loraine and Miss Loraine were prevented by illness from attending. Others present included Major-General Sir Francis Lloyd, Major-General Phillips, Major-General Henderson, Colonel Downing, Captain Mileson Edgar, Captain Lord John Hamilton and Lieutenant J. N. Guthrie (representing the Irish Guards), Colonel G. J. Cuthbert (representing the Scots Guards), Lieutenant Osborne, R.N., Captain Godfrey Paine, R.N. (Central Flying School), and the following officers of the Royal Flying Corps: Major Sykes, Captain Brooke-Popham, Captain Burke, Captain Raleigh, Lieutenant Barrington-Kennett, Lieutenant Porter, Lieutenant Reynolds, Lieutenant Hynes, Lieutenant Conner, Lieutenant Fox, Lieutenant Fletcher and Lieutenant Carfrae. There were a number of officers from Captain Loraine's regiment. Lieutenant R. N. Grenfell and four non-commissioned officers represented the Royal Bucks Hussars.

Simultaneously with the funeral a memorial service was held at the Guards' Chapel, Wellington Barracks, and was conducted by the Rev. M. W. Churchward, senior chaplain of the London District.

A Welcome Addition to the Trade.

It is always a good sign for a new industry when firms of good repute in other industries begin to take a practical interest in it. On these grounds alone it would be satisfactory to note that the firm of Alfred Dunhill, Ltd., are making a special bid for aviation business. There is, however, the more purely selfish view, which most of us are likely to take, that of the man or woman who wants to fly either as pilot or passenger and who wants the best possible garments in which to do it. The motoring garments on which the Dunhill reputation has been built are a guarantee that the right kind of material is going to be used, and that the designs will be properly thought out to make the clothes fit their special purpose. The firm would be glad to hear not only from those who want to purchase bodily equipment for aviation, but from anyone who has original or useful ideas either for anything to be worn or used on aeroplanes; for, as is well known, the firm do a very big business in clever accessories for cars, and the same system will apply to the aviation branch of their business. Hitherto their motto has been: "Everything for the Motorist except the Car"; in future it may be "Everything for the Aviator except the Aeroplane."

In Cases of Accident.

As a general rule one has not much faith in advertised medicines or anything which appears to be of the same nature. Therefore, when one does come across anything really good, it is all the more worth making a note of it. The writer has for some years had a great deal of faith in the healing qualities of Zam-Buk for cuts and scrapes of all kinds, and has always recommended it personally. It has only recently come to his notice that one of the directors of the Zam-Buk Company is Mr. Stuart Hirst, of Leeds, who has done so much towards the development of aviation in the North of England by putting up prizes for competition in Yorkshire and in generally prospering the growth of the Yorkshire Aero Club. It is, therefore, the more apropos to recommend this excellent compound. in The Aeroplane.

Among the many clever methods in use to advertise Zam-Buk, one of the best is the production of a really useful book on "First Aid," which under ordinary circumstances would cost some shillings, for it is well printed and strongly bound. But because it contains the firm's advertisements it is sold for sixpence, post free. Moreover, because Mr. Hirst believes in the future of aviation and wants aviators and those belonging to them to know how to look after themselves better, he has arranged that a limited number of these excellent hand-books shall be sent gratis to readers of The Aeroplane who write to "Zam-Buk, Greek Street, Leeds," and ask for them and mention the paper. Certainly there ought to be a copy in every hangar, if only to prevent ill-informed enthusiasts from dosing concussion cases with brandy and waggling broken limbs to see how much broken they may be. With the book and a supply of Zam-Buk the ordinary workshop cuts and scratches should be harmless, for Zam-Buk is a wonderful disinfectant and healer.

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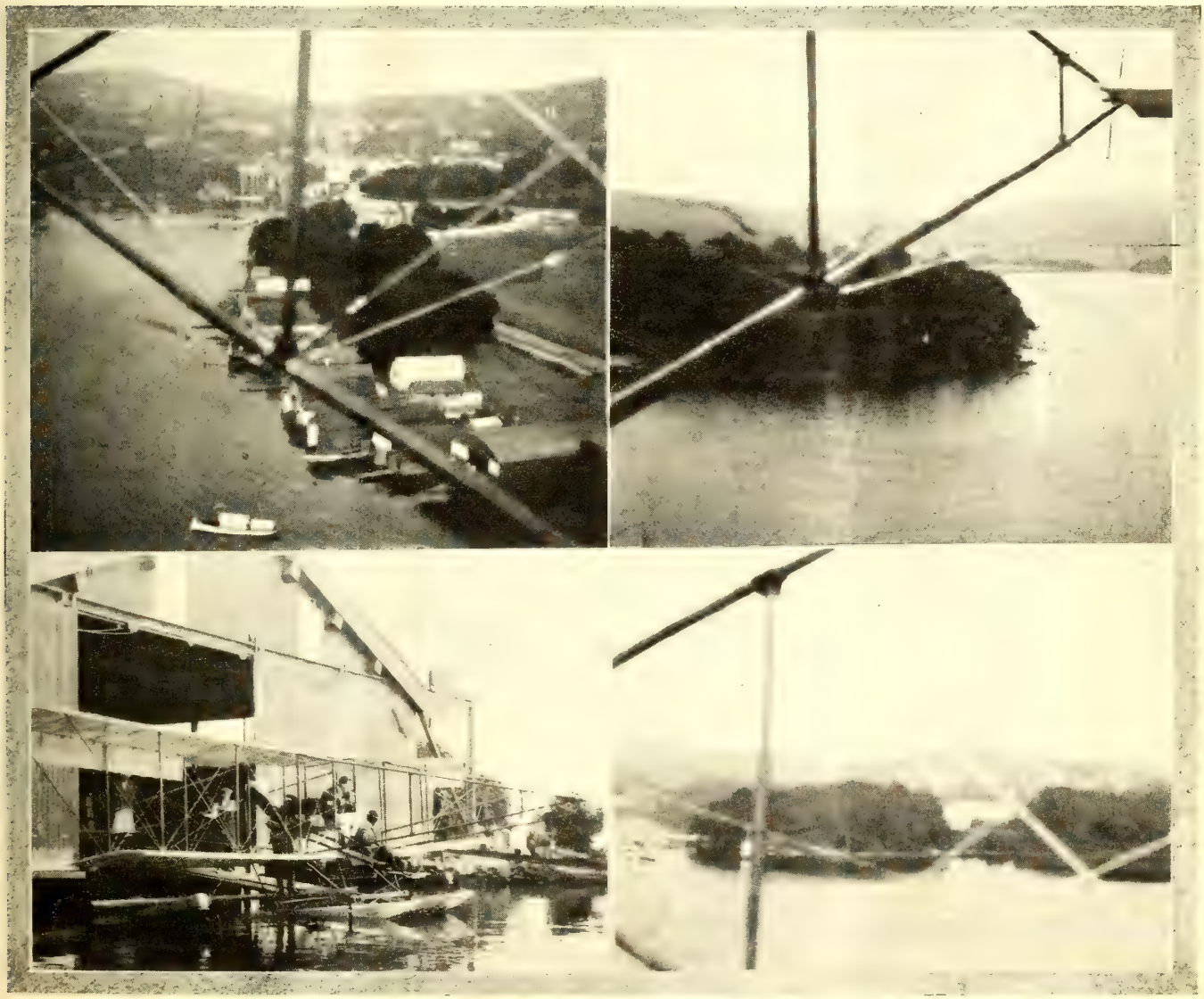
THE AEROPLANE

1D WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [REGISTERED AT THE G.P.O. AS A NEWSPAPER.] THURSDAY, JULY 25, 1912. No. 4.

HYDRO-AEROPLANING OVER WINDERMERE.



Windermere as seen by Miss Gertrude Bacon from "The Water Hen." Top left.—Over Bowness. Top right.—Rawlinson's Nab. Bottom left.—"The Water Hen" and her shed. Bottom right.—Firs House.

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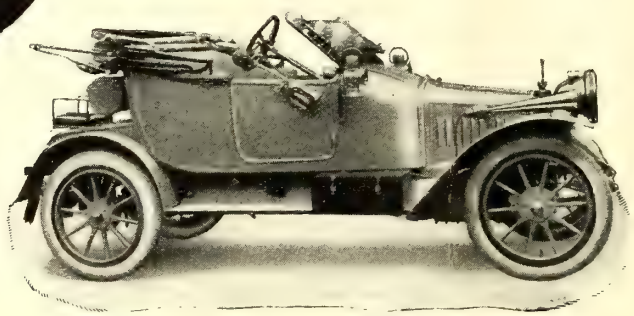
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Editorial and Advertising Office—166, Piccadilly. Telephone 5407 Mayfair. Telegrams—Aileron, London.

MATTERS OF MOMENT.

THE DEVELOPMENT OF AERIAL ROUTES.

It is rather interesting at times to follow the processes by which things work themselves out. Some four years ago at a motor trade dinner, Mr. S. F. Edge, who, unfortunately, takes no practical interest in aviation, though his terrific driving power and ingenious mind would be most valuable at the present moment, remarked in the course of a speech that he quite expected some day to see a strip of land cleared of all obstructions such as trees, fences and so forth, running all the way from London to Brighton, so that people could make an aerial trip to Brighton with the certainty of being able to land at any point along the road.

A couple of years ago a company was formed under the title of A.I.R., Ltd., and the central idea of the moving spirit of that venture was to establish a regular chain of landing stations all round Great Britain, and along the routes between the chief centres of the country. The scheme was a thoroughly good one, but, unfortunately, somewhat premature.

Now one learns from Mr. T. S. Harvey, The Aeroplane's correspondent in Italy, that a similar notion is on foot in that country, and that the scheme is backed by Government sanction and support. Mr. Harvey makes an exceedingly pretty point when he says that it will be advisable to inter some 20,000 kilometres of wires, for it will be remembered that quite a number of aviators have been killed through hitting telegraph wires on landing, or through falling on to power wires when the machine has gone wrong.

Part of the scheme of the Royal Flying Corps embraces the establishment of a chain of subsidised aerodromes all round this country, and part of the training course will consist of a tour of these aerodromes, so that it will be seen that the idea originally enunciated by Mr. Edge, and that evolved by A.I.R., Ltd., are now beginning to take definite shape.

There is no doubt that in a few years' time practically every town of any importance will have its landing and launching ground for aeroplanes, and it is even possible that to facilitate matters, power-driven launching machines may be installed on these landing places. Yet it is wonderful how slowly things which are obviously bound to come to pass actually come into being. This, of course, is due to the fact that constructive brains and money so seldom go together, and, of course, the installation of several hundred landing grounds simultaneously would be a colossal undertaking which could only be attempted either by the Government, or by a sudden wave of enthusiasm throughout the country in which each municipality would fit up an aviation ground either at municipal expense or by local subscriptions.

It was noted in these pages recently that there was a probability of a national subscription being got up to present the country with aeroplanes, and that a similar idea had been put forward some months ago. When the first proposition was made, and was laid before the authorities, Colonel Seely, at that time Under-Secretary of State for War, suggested to the promoters that it would be a great deal better if each county and town, instead of each purchasing aeroplanes and presenting them to the Army, who had nowhere to put them and no one to fly them, were to prepare in its own vicinity a thoroughly good aerodrome where military or civilian pilots might alight.

In this suggestion Colonel Seely showed a touch of that type of thought which constitutes the difference between the statesman and the politician, and it is sincerely to be hoped that if a big wave of enthusiasm for aviation does sweep over this country, as it may do some day, local enthusiasm will take the form of providing landing grounds and accommodation instead of in buying aeroplanes, for local people are much better fitted to acquire land and carry out building operations locally without waste of money than people working from any centralised Government office—*e.g.*, the recent "deal" in land at Upavon—whereas a Government Department would probably be much less likely to be swindled over the price or quality of an aeroplane than would provincial municipal Councillors, however full of good intentions.

The writer ventures to commend this point of view to others of the Press, and trusts that if anything comes of the idea it will not be forgotten that the people really responsible for it are S. F. Edge, Mr. Harrington Edwards, of A.I.R., Ltd., and Colonel Seely jointly and severally.

The Aerial League's Scheme.

Since the notes above were written The Aerial League of the British Empire has taken active steps towards raising a fund of one million shillings "with a view to fostering aerial navigation throughout Great Britain, and encouraging the development of a purely British aeroplane industry, and hastening the improvement of existing types of machines in order to render them safer and more suitable to the climatic and other conditions peculiar to these islands."

A slight error appears in the circular from which the quotation is taken, for it is there stated that "Nearly one million pounds have already been raised in foreign countries by public and private generosity, with the result that they have far outstripped Britain in the contest for the Admiralty of the Air." Now,

admitting that the figure is approximately correct, it is unfortunately a fact that in no country has the money collected in this way yet been spent, for all the funds are still in process of collection and have not been applied to use, with the exception of the public subscription for Count Zeppelin *personally* some years ago, when his first dirigible was burnt. It is, however, true that M. Deutsche, in France, has given large sums for technical research, and that M. Eiffel has spent much money in the same way. The real reason that France is so far ahead, and that Germany is making such strides, is that the ordinary business men of those countries have more intelligence than in this country, and have financed aviation businesses on a sound system.

When they do, it will be found that landing grounds and aerodromes exist in sufficient numbers to make it worth while to spend the money on buying aeroplanes. It is, therefore, to be hoped that should the Aerial League's fund be raised, as it certainly ought to be, no attempt will be made to purchase machines for the Government, for a mere £50,000 would be but a trifle towards the sum which will have to be spent on machines in the next year. Besides, it has been stated by Colonel Seely in the House that money is no obstacle to progress, as is evidently true when one learns the price paid for some of the machines which have been bought, for the land for the Central Flying School, and for the erection of buildings at Farnborough and elsewhere.

The money raised can be well spent on organising competitions for machines which will do what most machines will not do at present, or on research on lines not hitherto properly investigated, or best of all, on arranging good landing places along frequented routes, and near big centres.

The plan adopted for raising the money has been to approach the Lord Mayors and Mayors of the various municipalities in Great Britain, and induce them to become treasurers for their local subscriptions. They are also asked to appoint the local secretaries and committees. One learns that favourable replies have been received in many cases, so it is to be hoped that something worth while will be done.

The writer is, however, of the opinion that each local fund should be devoted to its own district; for local patriotism is stronger than national patriotism, and if it became a question of whether Birmingham or Manchester had the best municipal aerodrome, more money would be forthcoming in each case than if it were merely a case of which city subscribed most to a fund to be administered by people unknown to the subscribers

And if in the end the desired million shillings should be subscribed, it is to be hoped that it will be expended by people who know what is really wanted, and not by a number of well-meaning, but ill-guided, individuals who will squander it on some theatrical idea which may look well in the halfpenny Press, but will be useless for purposes of practical development.

DETAILS OF THE MACHINES ENTERED FOR THE MILITARY COMPETITION.

Machine.	Type.	Span.	Length.	Weight (empty)	Engine.	Name of Pilot.
Avro	War Office Biplane, 1912 (o-P-2-1)	36 ft.	About 30 ft.	About 1,250 lbs.	60 h.p Green (weight 298 lbs.)	Lieut. Wilfred Parke, R.N.
Maurice Farman ..	Military Biplane (1-2-P-2) ..	51 ft. 8 in.	39 ft. 6 in.	1,210 lbs.	70 h.p. Renault	Pierre Verrier
Mersey Aeroplane Co	Monoplane (o-1-P-1).. ..	35 ft.	24 ft.	750 lbs.	45 h.p. Isaacson	R. C. Fenwick
Flanders	Biplane (o-P-2-1)	43 ft.	32 ft.	1,000 lbs.	120 h.p. A.B.C.	F. P. Raynham
Blériot	Military XI-2, 1912 Tandem Monoplane (o-P-1-1) ..	29 ft.	25 ft.	About 600 lbs	70 h.p. Gnome	Gustav Hamel or
Blériot	Military XXI, 1912 (Side-by-Side Monoplane) (o-P-1-1)	36½ ft.	27 ft.	About 700 lbs	70 h.p Gnome	M. Perreyon
Martin-Handasyde ..	[V.C. Monoplane (o-P-1-1)	42 ft.	38 ft.	1,250 lbs.	75 h.p. Chenu	Gordon Bell
Handley Page ..	Monoplane (o-P-1-1) ..	40 ft.	28 ft.	850 lbs.	70 h.p. Gnome	E. Petre
Mars (Deutsche Flug-zeng Werke) ..	Monoplane (o-P-1-1) ..	52 ft.	45 ft.	1,200 lbs.	100 h.p Mercédés	Ober-Lieut. Bier.
Arrow-Plane (Jacob Lohner & Co.) ..	Biplane (o-P-2-1)	50 ft.	40 ft.	1,584 lbs.	120 h.p. Austro-Daimler	Lieut. von Blaschke
Coventry No. 1 ..	Biplane (o-P-2-1)	40 ft.	34 ft.	1,100 lbs.	100 h.p. Gnome	T. O. M. Sopwith
Coventry No. 2 ..	Biplane (o-P-2-1)	35 ft.	32 ft.	1,250 lbs.	100 h.p. Chenu	T. O. M. Sopwith
Hanriot .. .	Monoplane (o-P-1-1)	lifting are	a 221 sq. ft.	About 981 lbs	100 h.p. Gnome	Sydney V. Sippe
Cody	Monoplane (o-P-1-2)	46 ft. 6 in.	37 ft.	1,200 lbs approximately	120 h p. Austro-Daimler	S. F. Cody
British Bréguet No. 1	Tractor Biplane (o-P-2-1) two-seater	About 48 ft.	About 32 ft.	About 1,200 lbs.	80 h.p. Salmson (Système Canton Unné)	W. B. R. Moorhouse
British Bréguet No 2	Tractor Biplane (o P-2-1) two-seater	About 48 ft.	About 32 ft.	1,300 lbs.	110 h.p. Salmson	M. Moineau
Borel	Monoplane two-seater (o-P-1-1)	38 ft.	23 ft.	735 lbs.	80 h.p. Gnome	Chambenois
Bristol	Military two-seated Mono-plane (o-P-1-1)	40 ft.	29 ft.	800 lbs.	80 h p. Gnome	James Valentine
Bristol	Military two-seated Mono-plane (o-P-1-1)	40 ft.	29 ft.	800 lbs.	80 h.p. Gnome	H. Busteed
Bristol	Military Tractor Biplane (o-P-2-1)	40 ft.	29 ft.	1,700 lbs.	70 h.p. Daimler Mercedes	E. C. Gordon England
Bristol	Military Tractor Biplane (o-P-2-1)	40 ft.	29 ft.	1,500 lbs.	100 h p. Gnome (direct drive)	C. H. Pixton

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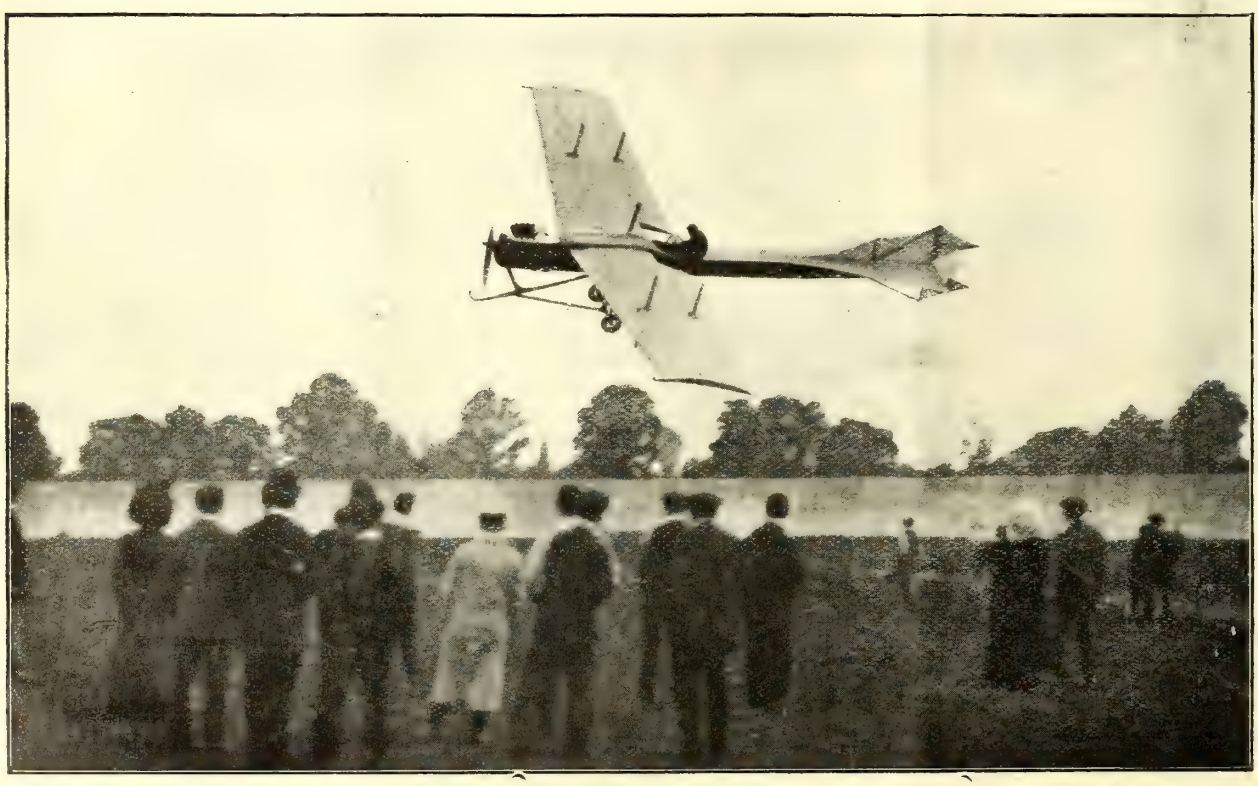
In Memoriam—Hubert Latham, 1883-1912.

BY W. E. de B. WHITTAKER

No man may know the form of his leaving this earth. The unexpected is constant. Soldiers, to whom the risk of death has been a daily portion, have, after years of active service, died quietly in country places of some simple ill to which the humblest and quietest are equally liable. To escape fatal injury in the early days of a sport involving a high degree of danger and to end one's life in the ordinary pursuit of another more normal sport is one of the inexplicable vagaries of fate.

Hubert Latham was born in Paris on January 10th, 1883. His family was of Lancastrian descent, which had settled in France some eighty years ago. His mother is of French ancestry, and it was of his French blood that Latham was most proud. He had the greatest dislike of being called English, and his denial was always prompt and cold. In his early years educated in France, he was for eighteen months, in 1903-4, at Balliol College, Oxford. He was a true Oxonian always. The place left its mark. Never a hard worker, he was mentally brilliant. To him in those days, and to a slighter degree in later years, a clever epigram meant more than an empire lost or won. His career was not academically successful, but he left a name which survives still. After going down in 1904 he travelled for many months, visiting the French colonies in the Far East. Big game hunting was an early passion, and he was able to gratify it. In 1905 he had his first experience of the higher atmosphere in a balloon. He travelled across the English Channel in a balloon piloted by his inseparable friend and cousin, Jacques Faure, who himself died in Canada two years ago as a result, it is said, of a hunting accident. Three years later a new era opened for him. In the autumn the late Mr. Wilbur Wright made the first sustained flights with an aeroplane in Europe at Le Mans. Latham was immediately interested and travelled to Pau, where Wilbur Wright then was, and endeavoured to persuade the latter to teach him to fly. Delay has often altered the course of history, and it did so in this case. Mr. Wright was not impressed by the pale, reserved French gentleman, whose constant companion was a cigarette, and, busy as he was, hesitated about making definite arrangements. Latham, bored by delay and anxious to fly, went to Reims and saw the Gastambides and M. Levavasseur, who were then constructing the first Antoinette monoplanes (in some sense the successors of the Gastambide-Mengin, which made short flights late in 1908 at Issy-les-Moulineaux). He immediately made arrangements with them, subscribed to the company, and later became a director. With the slightest instruction from M. Demanest, who himself was a novice, Latham made his first flight in March, 1909, at Mourmelon. This on the old type Antoinette, with a heavy central skid, shock-absorbers under the wings, ailerons, and very large tail. After a fortnight's practice he flew a kilometre before his engine stopped. On May 22 he flew for 37 minutes, thus creating a monoplane record, and in the next month he began that for which he was after famous—the art of flying in a wind. Awestruck reporters stated that he had been seen to light a cigarette whilst in the air. His imperturbability and disdain for those who allowed their feelings to show impressed these underpaid recorders of the unimportant in life. Latham was one of those who feel that a smile is the best reception for a tragedy.

Hardly a week drifted by without the news of some feat of the new aviator. He broke records and machines with a careless impartiality. In the early part of July he announced his intention of flying the Channel. On the 19th he made the attempt and failed—gloriously. A new and better machine was brought to the coast, and had it not been for the gross carelessness of those who had the charge of his affairs, it is unlikely that M. Blériot would have been first in the field. Latham heard of his rival's successful crossing and wished to make the attempt to follow him, but the wind and M. Levavasseur's caution rose, and he was not allowed to start. On the 27th he again fell into the Channel, this time within a mile of



The late Hubert Latham flying at Brooklands.

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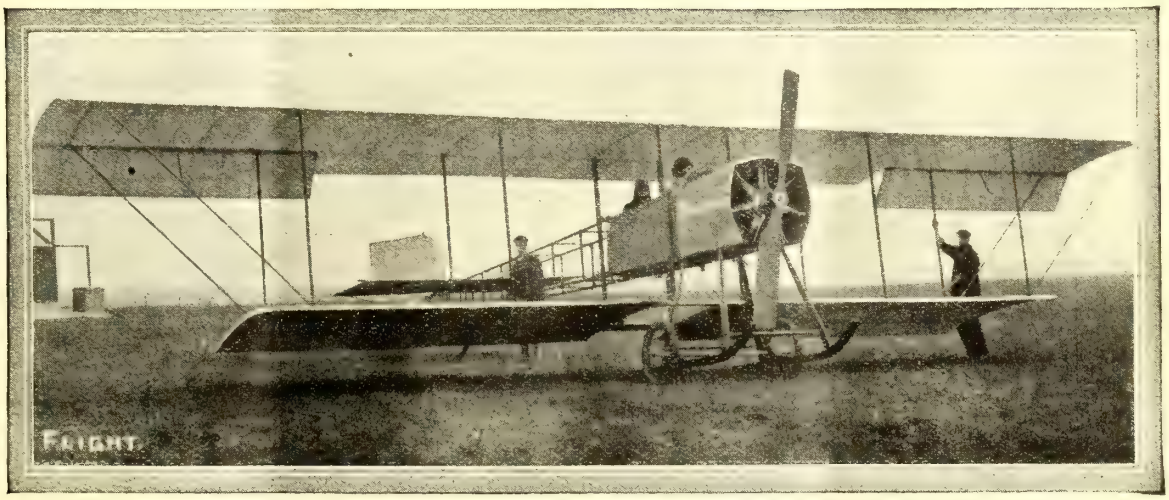
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land, and again through the carelessness of his mechanics. His bitter complaint to me at a later date was that, despite his two attempts, the *Daily Mail* had not the courtesy to offer him any small memento of the occasion. He was invited to his rival's complimentary lunch—that is all. At Reims, in August, his efforts were continually baffled by engine failure, yet on two occasions he made fine flights, one on August 27th of 111 kilometres (on Antoinette 13), and an altitude record of 508 ft. on the last day of the meeting.

At Berlin he continued his victorious career. The speed prize fell to him, and he was second in distance and altitude. But the chief interest of this visit is that during the week he made a splendid flight across the City of Berlin, an exploit requiring considerable courage and skill in those early days, and with all depending on the vagaries of the then lightly-built Antoinette engine.

In October, 1909, he was at Blackpool, and here carelessness and bad weather prevented his making a flight until the end of the week. Then, in the execution of a promise made to a lady, he flew a circuit of the ground in a 42-mile-an-hour wind. The effect on those who watched was extraordinary. Latham earned his popularity. In the history of flying there may be flights as fine—there is none finer. At the end of the year Latham and Paulhan flew in rivalry for the height record. One day Paulhan would add one hundred feet to the record, and the next day Latham would beat it.

In the first days of 1910 M. Leon Delagrange, an old friend of Latham's and a distinguished aviator, was killed whilst flying at Croix d'Hins. On January 7th he was buried. That day Latham raised the height record to a kilometre. He said on his descent: "I dedicate this flight to the memory of my friend Delagrange."

A few days later he was flying at Heliopolis, where he fell 60 ft., but escaped injury. In February he was at Nice and made his first successful oversea flight. During the next three or four months he used his Antoinette as others use motor-cars—as a means of locomotion. No place knew him for very long. One month he was at Mourmelon teaching others to fly. He was not a good tutor. His impatience of slow progression was too great. He had found little difficulty in flying himself, and he lacked comprehension of slower brains and clumsier hands. Other times he was filling different flying engagements all over the country, fulfilling them languidly but with that careless grace that never deserted him.

In June came the Reims meeting. At last he had a perfect engine—a motor on which he could place reliance. For one who always despised the mechanical he had arrived at an exceptional understanding of the art of driving aerial engines. On the first or second day of the meeting Wachter, familiarly known as "Charles," for he was wonderfully popular with all who knew him, fell to his death from a great height. Without any hesitation and with undisturbed calmness Latham gathered the other Antoinette pilots round him and suggested they should fly at once and as often as possible through the meeting in honour of "Charles." The world knows how well they flew. Those who were there will never forget Latham and Labouchère—perfect pilots on perfect machines—sweeping magnificently round the pylons, hour after hour, day after day, supreme above all. Every prize it was possible to win they won, and no pilot has had so splendid a requiem as Charles Wachter.

Latham himself was careless of death. It seemed sometimes as though he wished to die. His impatience of calculated caution was shown by his cold anger when he found that the mechanics had duplicated stay-wires on his machine without his leave. For the last time he carried off the height record. Other types of aeroplanes were in future to do that which was impossible for the Antoinette. The hawk may outpace the eagle, but it cannot contest its sovereignty in the air.

After Reims he flew for pleasure simply. He visited M. le Marquis de Polignac by way of the air, taking his gun-cases with him. He became the prince of cross-country pilots. Le Havre saw him one day—Paris the next. He kept an aeroplane at the Chateau de Maillebois as others a carriage. At the Le Havre meeting he was supreme as an aviator; others carried away prizes by reason of the specific qualities of their machines. In this year—the great days of the Antoinette—he was chosen to represent France in the Gordon-Bennett race at Belmont Park. It has become history how he flew two laps of the course with the leading edge of his right plane broken and fluttering in the wind. The beauty of his flights impressed even the calculating American. A writer in an aviation monthly, concluding his account of the meeting, says: ". . . the westerly mark—gaunt, tower-like—is silhouetted against the sky at sunset, while between them, turning and banked against the glow, gracefully sweeps Latham, philosopher and aristocrat, in his superb Antoinette machine."

He flew across Baltimore to gratify the whim of a sick man. Later, because of the beauty of it, he flew through the Golden Gate at San Francisco.

After his return from the United States he did but little flying. He said that the skill of pilots had gone beyond the possibilities of present aeroplanes, and a rest was good. He piloted the Antoinette military monoplane at the beginning of the military trials, but the engine-power was insufficient, and failure attended his efforts. Three months earlier he had been in England and carried out his cherished plan of flying to the beloved Oxford. Even those whose mouths are closed by jealousy cannot but admit that his flying at Brooklands was wonderful. At the end of the year he flew in loneliness for two hours in a very high wind at Mourmelon. It may have been his last mortal flight. At Christmas time he went to the Congo, partly on a voyage of exploration and partly on a big game hunt. And, as all know, he was killed by a wounded buffalo. He expected never to return alive.

There was something of the heroic in the life of Hubert Latham. He was imbued with the spirit of those who jested in the gardens of Versailles or Fontainebleau before the Lilies of France faded. He was not of the *ancienne noblesse* in fact, but in thought. He lived later than his age. One of the very few who followed aviation with little thought of gain, he was free of the petty spites and animosities that disturb life so much. His bitterest enemy could not deny his perfect courtliness and chivalry. In a world of commerce there was a wonderful attraction in his attitude of detachment. A man of moods, he was never unintentionally rude. It was a proper thing that he flew the Antoinette, the most beautiful aeroplane the world has seen. There is something tragic in it all. The Antoinette flies no more, and its greatest pilots are all dead. The last to fly the monoplane died with it a few weeks ago—the Comte de Robillard-Cognac. The others—Laffont, Wachter, Hauvette-Michelin, and Ruchonnet—have gone, and now Latham, the prince of them all. A brilliant page of history has closed, and nothing save memory remains. Little that is put on paper is sincere, and perhaps silence is the best requiem. The world has lost a gallant gentleman and a chivalrous heart. And yet—

"At the door of life, at the gate of breath,
There are worse things waiting for men than death."

From the "London Gazette."

War Office, July 16th.—Regular Forces, Establishments.

Royal Flying Corps (Military Wing).

Lieut. B. H. Barrington-Kennett, Grenadier Guards, to be Adjutant, May 20th, 1912.

Quartermaster and Hon. Lieut. W. J. D. Pryce to be Quartermaster, June 20th, 1912.

The undermentioned appointments have been made:—

Squadron Commanders, with the temporary rank of Major while so employed, May 20th, 1912:—Capt. C. J. Burke, the Royal Irish Regt.; Capt. H. R. M. Brooke-Popham, the Oxfordshire and Buckinghamshire Light Infantry; Capt. A. D. Carden, Royal Engineers; and Capt. E. M. Maitland, the Essex Regt.

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Flight Commanders, July 1st, 1912:—Capt. C. R. W. Allen, the Welsh Regt.; Capt. G. H. Raleigh, the Essex Regt; and Capt. P. Hamilton, the Worcestershire Regt.

Flight Commanders, with temporary rank of Captain while so employed, July 1st, 1912:—Lieut. B. R. W. Beor, Royal Artillery; Lieut. D. G. Conner, Royal Artillery; Lieut. C. M. Waterlow, Royal Engineers; and Lieut. H. R. P. Reynolds, Royal Engineers.

Flying Officers, July 1st, 1912:—Capt. G. W. P. Dawes, Princess Charlotte of Wales's (Royal Berkshire Regt.); Lieut. C. A. H. Longcroft, the Welsh Regt.; Lieut. G. T. Porter, Royal Artillery; Lieut. C. T. Carfrae, Royal Artillery; Lieut. G. B. Hynes, Royal Artillery; Lieut. T. G. Hetherington, 18th (Queen Mary's Own) Hussars; Lieut. A. G. Fox, Royal Engineers; and Lieut. J. N. Fletcher, Royal Engineers.

Special Reserve of Officers.
Royal Flying Corps (Military Wing).

The following to be Second Lieuts. (on probation), July 17th, 1912:—R. L. Charteris and R. O. Abercromby.

War Office, July 19th.—**Special Reserve of Officers.**
Royal Flying Corps (Military Wing).

Denys C. Wilson to be Second Lieut. (on probation); July 20th, 1912.

U.S.A. Military Aviation.

Some details of the fatal accident to Lieutenant Hazelhurst and Mr. Welsh at College Park, Maryland, on June 11th, are printed in the July *Aeronautics* (New York). They were killed whilst endeavouring to fulfil the climbing test required by the military authorities, that is to climb 200 ft. a minute for 10 minutes, with 450 lbs. load, in addition to fuel, for 4 hrs. They rose to some height, and then swooped in order to gain momentum for the climb. Apparently Mr. Welsh straightened out too late, and the machine struck the ground with great force, killing passenger and pilot instantly.

Mr. Welsh was one of the Wright company's pilots, and had great popularity. He was an aviator of considerable experience. Lieutenant Hazelhurst was born at Brunswick, Georgia, June 25th, 1886; Cadet, United States Military Academy, June 16th, 1904; Second Lieutenant, 17th Infantry, February 14th, 1908; attached Signal Corps Aviation School, March 1st, 1912. —W. E. de B. W.

French Military Aviation.

Little flying was done at the Review of July 14th last Sunday. Lieutenant-aviator Chevreau, from Vincennes, passed over the troops on his Blériot monoplane at a height of 1,120 metres.

Below, Captain-aviator Rose, commanding, and Lieutenant-aviators Chabert, Mailfert, de Sylvestre, and Yence rode by (on horseback) at the head of the aviation transport column.

Commandant Félix is still at Etampes practising bomb-dropping from a Farman biplane.

Quartermaster Feirstein made a long flight at Pau on a type xxi. two-seated Blériot, accompanied by Commandant Chabord.

It has been officially decided to create a military aviation centre at Dijon.

In the flights necessary for his military brevêt Lieutenant-aviator Vogoyeau flew on a Maurice Farman biplane from Buc to Peronne.

Lieutenant-Aviators de la Morlaye, de Sylvestre, and Bellemois on Blériot monoplanes are still flying in the district of Nancy and Epinal.

It is officially announced that the Minister of War has decided, in the case of requests from N.C.O.'s and men in the reserve or Territorial army to be attached to the aeronautic service as aviators, to consider only those who possess already their military brevêt.

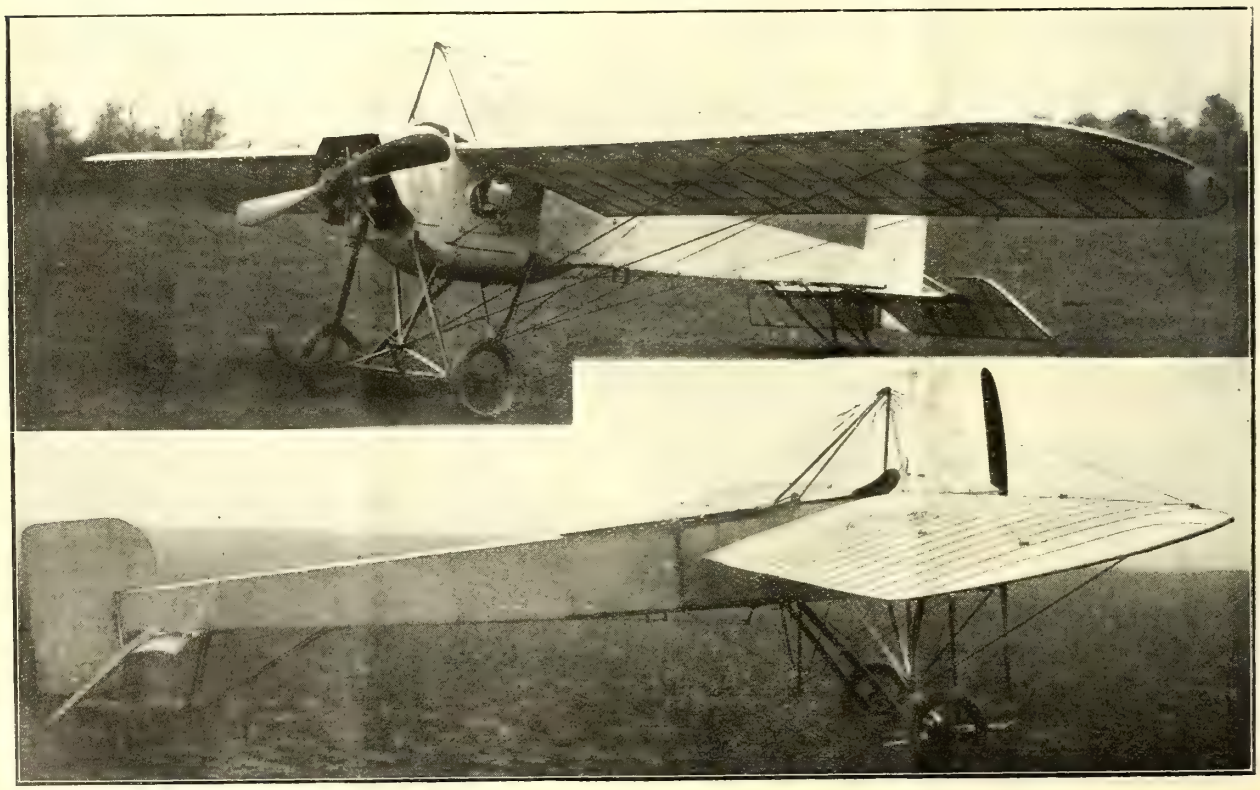
Lieutenant-aviators Mailfert, Bousquet, Challe, Roussel, and Prat and Sapper de Marmier have, on Gnôme-Farman biplanes, been making extended reconnaissances in the neighbourhood of Chalons. At the same time Lieutenant-aviators Menard, Piena, and Vigne, also on Gnôme Farmans, have been flying over the troops daily.

In the contest of the Aero-cible (aerial target) Michelin, Lieutenant-aviator Varcin, on July 20th, piloting and firing bombs at the same time, placed 10 to 15 bombs in the circle. His machine was a Maurice Farman biplane. This competition appears to drag on indefinitely.—W. E. de B. W.

French Naval Aviation.

On July 17th the French Naval Manœuvres in the Mediterranean began. The point of interest this year is that the aeroplane mother ship, the cruiser *Foudre*, is taking part. She will have on board several aeroplanes and hydro-aeroplanes. The two-seater Nieuport hydro-monoplane delivered at Toulon on Friday will be flown by Lieutenant de Vaisseau Delage.

Admiral Aubert, chief of the Naval General Staff, attended by Capitaine de Vaisseau Prat, Lieutenant de Vaisseau Hautefeuille, and Enseigne Fournié formally received at Buc, on behalf of the Ministry of Marine, the Gnôme-engined Henry



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Farman hydro-biplane ordered for the Navy. It is to be flown by Enseigne Fournié.

On July 18th, Lieutenant de Vaisseau de l'Escaille, on a Nieuport monoplane, passed the first portion of the tests required for his *brevet militaire*. He flew from Villacoublay to Orleans and Chartres and back.—W. E. de B. W.

German Military Aviation.

Lieutenant Preusser (107th Infantry), while flying on a Grade monoplane at the Lindenthal aviation ground, the second series of figures of eight necessary for his certificate, fell and was killed instantly.

The Siemens-Schuckert firm have opened an aviation branch.

The Minister of War has purchased the Siemens Schuckert dirigible (13,000 cubic metres; length, 120 metres, four 120-h.p. motors, speed, 71 kilometres an hour).—W. E. de B. W.

Austrian Military Aviation.

The Ministry of War have purchased the Lohner biplane on which Lieutenant Von Blaschke broke the height record, and have ordered ten more.—W. E. de B. W.

Norwegian Naval Aviation.

Captain Sem Jacobsen, Norwegian Royal Navy, has made his first flights alone on a Maurice Farman biplane, as also has his brother officer, Captain Shanlon.—W. E. de B. W.

Greek Naval Aviation.

Naval-Lieutenant Notaras, Grecian Royal Navy, has passed the tests for his pilot's certificate at the Farman school at Etampes.

Several Henry Farman biplanes were delivered to the Greek Government. The actual number is not stated. Naval-Lieut. Kamberos flew one of them from Athens to Hydra, crossing 80 kilometres of sea on the way. He flew back the following day.—W. E. de B. W.

Bulgarian Naval Aviation.

Three of the Bulgarian officers at Etampes—Lieutenants Petroff, Topratchieff, and Bogdanoff—are making excellent flights on the two-seated 70-h.p. Gnôme Blériot (type xxi.) recently purchased by the Bulgarian Government.—W. E. de B. W.

Servian Military Aviation.

Lieutenants Ilitch and Stankovitch and the N.C.O. Tomitch are still flying Anzani Blériots.—W. E. de B. W.

Russian Military Aviation.

Lieutenant Zakoutski, learning to fly a Blériot monoplane at Sevastopol, was killed on July 17th.

It is reported that Lieutenant-aviator Lybovski, flying a Farman biplane, arrived at Krasnoïe-Selo from Sevastopol on July 18th. He stopped at Moscow on July 10th.—W. E. de B. W.

Italian Notes.

The suitability of M. Farmans for transporting food and other perishable objects has caused the Italian military authorities to invest in a few of them for use in Tripolitania, and twelve non-commissioned officers have been learning to fly them at Buc during the last month.

The three-hours trial of the first passenger aeroplane bought by the State from the subscription recently raised here, as elsewhere, to encourage aerial defence will take place at Somma, where the machine has been built. It is a Caproni monoplane, with 70 h.p. Anzani, and must stay in the air with the passenger for 3 hrs. to be accepted.

I hear with great interest that the hydro-aeroplane which Captain Guidoni has invented and flown quite a lot at Spezia is to obtain practical experience on active service shortly at the war. It is a biplane, and claims an exceptionally rapid exit from the water; in other words, great efficiency of its two torpedo-shaped floats.

Milan is delighting in an all-metal monoplane which has just left the Taliedo works, and is presumed to be bullet-proof. I have not seen it, but from the photos it appears as a very neat dragon fly. It is wireless, and the slender circular fuselage carrying the tail seems no bigger than a man's arm.

The evolutions of the first medium-sized dirigible *M.I.* are being very carefully watched during her trials, the Minister of War himself going up in her one day recently.

Among the civilians there is serious talk of a commercial undertaking under Government approval to create landing sites every 20 kilometres on the more important routes. Some 20,000 miles of electric wiring might well be interred at the same time.

I see that the L.U.C.T. rotary motor after trial at Aviano is now carrying the hefty Rossi on the very robust Asteria passenger biplane. I am hoping to send sketches of it shortly. Apropos of tricky motors I am glad to read that pupils showing less aptitude than the head instructor deems essential have their money returned at this school. Altogether their prospectus should be a comfort to the anxious mother of a duffer.—T. S. Harvey.

Continental Notes.

A prize having been offered for the fastest flight on July 15th from Juvisy to Amiens and back, several well-known pilots entered. Owing to the bad weather only four started:—Molla (R.E.P. monoplane, 80 h.p. Gnôme), Bobba (Clement-Bayard monoplane, 70 h.p. Gnôme), Gastinger (Clement-Bayard monoplane), and Senard (Blériot monoplane). M. Bobba withdrew after a single circuit of Juvisy Aerodrome. M. Molla was the winner, as he alone arrived within the official hours of flying. Gastinger arrived 15 min. late, and Senard landed at Lagny on the return journey.

Gaston Olivérès, of whom I mentioned the death last week at Bourg-en-Bresse, was an old pupil of "the inseparables," Martinet and Legagneux, at Compiègne. He was a skilled aviator as far as biplanes were concerned. M. Sommer is unfortunate in that death has claimed so many of his best pilots.

M. Maurice Guillaux is flying an Anzani Caudron hydro-biplane at Les Sables d'Olonne. "To the admiration of the bathers," say the French papers. One would have thought "annoyance" a more appropriate term. M. Grazzioli on a Blériot Anzani and M. Duval on a Caudron Gnôme have, in spite of the high wind, made excellent flights during the last week at Billom (Puy-de-Dôme).

M. Sadi-Lecoite (Blériot 60-h.p. Anzani) and M. Demazel (Demazel 80-h.p. Anzani) were flying at Alençon on July 16th.

MM. Garros, Audemars, and Barrier flew on Blériot monoplanes to Chateaudun on July 16th, where they gave an exhibition of how novices ought not to fly. Garros and Audemars later flew back to Issy-les-Moulineaux.

M. le Comte d'Hespel flew on July 16th from Berchem, near Brussels, to Ostend (124 kilometres) in 54 min. He maintained a mean altitude of 1,200 metres.

M. Abramovitch left Johannisthal Aerodrome on the 16th inst. for St. Petersburg on his Wright biplane. Despite his safe conduct from the Minister of the Interior, he has been treated at the German frontier with that boorish lack of courtesy for which the German is becoming rightly famous. At the time of writing he has not been allowed to cross the frontier.

The Clement-Bayard dirigible, inspired by the performance of the *Eclaireur Conté* last week, left Lamotte-Breuil on Saturday, July 13th, at 8.23 p.m., and flew over Paris, the Seine, Honfleur, Le Havre, Etretat, Rouen, Beauvais, Ormart, Compiègne, and thence to Lamotte-Breuil, where it landed at 50 minutes past midday, after a flight of 16½ hrs. It had on board during this flight M. Clement, M. Sabatier, the designer, and Captain Néant, representing the Minister of War.

MM. Barra and Mesguich have been making prolonged flights in the vicinity of Marseilles each fine day, on the Paulhan-Curtiss hydro-biplane.

On July 17th, at Saint-Etienne, one of the mechanics of the Burlat engine manufacturers was killed by a propeller whilst starting an engine. His skull was shattered. Swinging propellers is one of the most dangerous operations connected with aviation, and should be abolished.

Another aviation meeting began at Juvisy on Sunday last. Among the entrants were:—Benoist (Sanchez Beza biplane), Bielovucic (Hanriot monoplane), Bobba (Clement-Bayard monoplane), Caillaux (Goupy biplane), Chambenois (Borel monoplane), Champel (Champel biplane), Chemet (Borel monoplane), Denhaut (Donnet-Lèvêque hydro-biplane), Didier (Stabilisateur Doutre biplane), Gastinger (Clement-Bayard monoplane), Gobé (Nieuport monoplane), Molla (R. E. P. monoplane), M. le Prince de Nissole (Tellier monoplane, *R.E.P. engine*), De Pischoff (De Pischoff monoplane), Poulain (Poulain monoplane), Sénard (Blériot monoplane), Trettar (——— biplane), Emile Védrines (Copin-Réyillard monoplane), and Vergniault (Goupy biplane). If the glitter of great names is not merely meretricious, Juvisy the desolate has begun to show the world some worthy flying.

Again the dreary list of records grows. This time Legagneux bears well-deserved laurels. He has, on a Zens monoplane (80-h.p. Gnôme engine), broken all speed records with a passenger up to 150 kilometres, thus passing Frey, who has had but a week of twilight glory. M. Legagneux's times are as follow:—10 kilometres in 4 mins. 24 4-5 secs.; 20 kilometres in 8 mins. 51 1-5 secs.; 30 kilometres in 13 mins. 18 3-5 secs.; 40 kilometres in 17 mins. 44 4-5 secs.; 50 kilometres in 22 mins. 14 secs.; 100 kilometres in 44 mins. 36 3-5 secs.; 150 kilometres in 1 hr. 7 mins. 10 secs. His mean speed was thus 134 kilometres (about 83 miles) an hour, though he had to make 108 turns.

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The Third July Meeting.

With so many people away on holidays it was quite surprising to find that Hendon still attracted its thousands on Saturday, and a very intelligent and appreciative "gate" they made. During the early afternoon, in spite of threatening rain, the weather was almost ideal for flying, but towards evening a nasty, cold, gusty north-east wind got up.

Mr. Harry DelaCombe got the three competitors in the Cross-Country Race away in good time, and at the end of the first lap Signor Nardini, on the Deperdussin, was leading by a few seconds from M. Verrier, on the big Farman, with Mr. Astley, on the old Blériot, only just behind. They all came low at the turn, and Signor Nardini looked like winning easily as they left the Aerodrome; but on the second journey into the country they ran into a hailstorm, and Nardini, being without goggles, went very wide at the turn, so that Mr. Astley won fairly easily, the times being: (1) Astley (scratch), 21 mins. 24 secs.; (2) Verrier (1 min. 3 secs.), 21 mins. 51 3-5 secs.; (3) Nardini (scratch), 23 mins. 18 secs.

After this race young Marcel Desoutter gave a long and very pretty exhibition flight on the Blériot, keeping well away from the crowd, and making beautifully judged banked turns and spiral glides. He did not seem to take any chances, yet his flying was quite impressive, and on a really modern machine there would be very few Blériot fliers to beat him as an exhibition flier. He has done no cross-country work as yet, but if he has the gift of finding his way he is likely to be in the very front rank of pilots. The Speed Handicap made a very fine race, though it looked once or twice as if Nardini was going to be brought over by the wash of the Farman, as he insisted on flying low and passing outside it, instead of above, as Desoutter did. The result was: (1) Nardini (scratch), 9 mins. 49 secs.; (2) Desoutter (27 secs.), 9 mins. 57 3-5 secs.; (3) Verrier (42 secs.), 10 mins. 9 2-5 secs. Verrier's cornering, as usual, was perfect. Desoutter lost a little time by flying high, but not so much as Nardini did by going outside to pass. The latter's Deperdussin has never flown so well.

It will be good news to frequenters of Hendon that the Deperdussin School is being moved there, two sheds being already occupied, and we shall probably soon see Lieut. Porte flying one of the latest of the British-built machines. Mr. Ewen, who, unfortunately, had to relinquish his *Daily Mail* tour owing to the ankle he sprained at Lincoln giving him trouble, has returned to Hendon and has taken a couple of extra sheds, for he has several new Caudron machines coming over from France.

After the racing was over there was a lot more flying. Mr. Astley, on the old Blériot, made a very nice flight, finishing with one of the neatest spiral glides I have seen. M. Moineau did wonderful things on the eighteen-months'-old 100-h.p. Bréguet, and for once showed her true gliding angle, which is splendid, though he usually prefers a fairly steep spiral descent. On this occasion he glided fully half the length of the ground in a dead-straight line from about 200 ft., with his propeller standing still. He afterwards took up Miss Greta Morritt, a sister of Mrs. Moorhouse, and did a wonderfully clever save from a peculiarly nasty side-slip in the middle of his first turn. Miss Morritt also went up with M. Verrier, who took up about a dozen other passengers in the evening.

The familiar Grahame-White box-kites were mostly under repair—thanks to the pupils—so they did not turn out. Mr. Grahame-White arrived too late to fly, and Messrs. Hamel, Valentine, Travers, etc., were away; but when they all come back, and the new Aircraft Company's sheds, the Bréguet, Deperdussin, and Ewen sheds are all occupied, there will be busy times ahead for everyone.

Sunday at Hendon.

On Sunday, the 21st, the Weather Clerk and the imps of chance again permitted a splendid show of flying at Hendon. Proceedings commenced at 3.25, when Mr. Lewis Turner took out the school 'bus (No. 7) and made a very fine flight of 10 minutes, finding things not very easy, in spite of a calm, for his engine was pulling badly. As he descended, Signor Nardini took up the Gnôme Deperdussin of historic memory, and took it over the surrounding country, while Mr. Gates showed what a good flier can do with a heavy school machine, making a flight of 20 minutes. While both were still up, M. Verrier commenced his usual Sunday performance: passenger climbs in by ladder; quick rise to 400 ft.; two circuits; magnificent landing; passenger descends by ladder. Repeat *da capo ad lib.*

About 4 o'clock, Mr. Grahame-White took out the old 'bus, to see what the air was like. After this the spectators had a monoplane exhibition, Mr. Astley taking out the "Gordon-Bennett" Blériot for a quarter of an hour, followed by Mr. Hamel, who made a most daring exhibition, which was at an unfortunate time, for most of the visitors were having tea when he started, and the qualms produced in the experienced by spiral dives overhead, combined with tennis-cake amidships, must have been indeed awful.

About 5.30 there was another rare sight—for it is not often that one can see flying at once three such fliers as Mr. Grahame-White, Mr. Hamel, and M. Verrier, on three such fine machines as a new Henry Farman, a new Blériot, and a new Maurice Farman.

A third exhibition by Mr. Hamel concluded the excitements of the day, except for a long string of passengers who took rides with M. Noel.



A close finish in the Speed Handicap on Saturday at Hendon. Signor Nardini in front, M. Desoutter above, and M. Verrier below.

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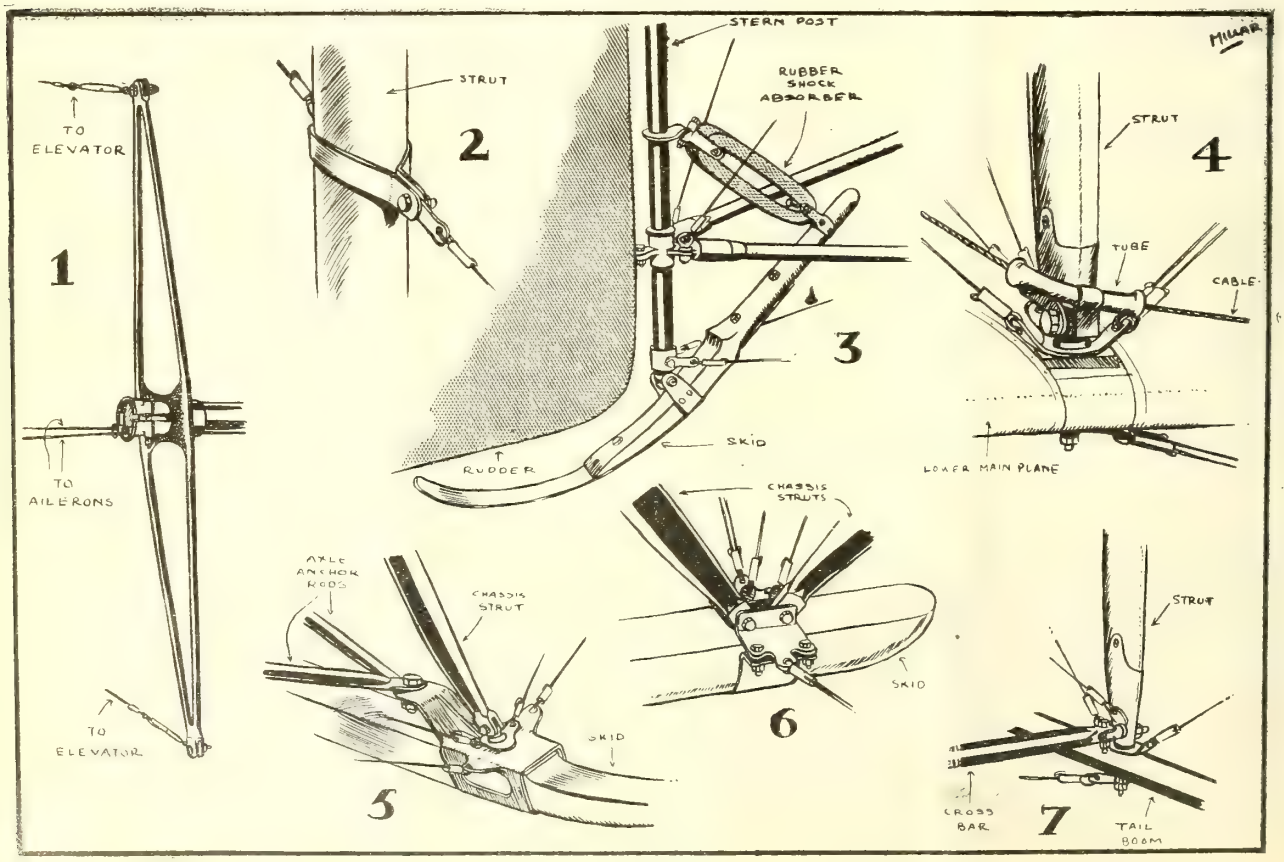
Mr. Grahame-White and Mr. Gates starting out on the Henry Farman.

The products of those who have been engaged longest in the study of the science of aviation are naturally most interesting to those who watch. Aerodynamic efficiency and practical needs are not always the same, and a machine that does not in its form attract the scientific purist may be of the most use to the world at large. There is no question that Mr. Henry Farman has at his command a more complete knowledge of all that which concerns aviation than have the great majority of those who design and build aeroplanes for the public use. Those who know him trust him, and that is sufficient for most people.

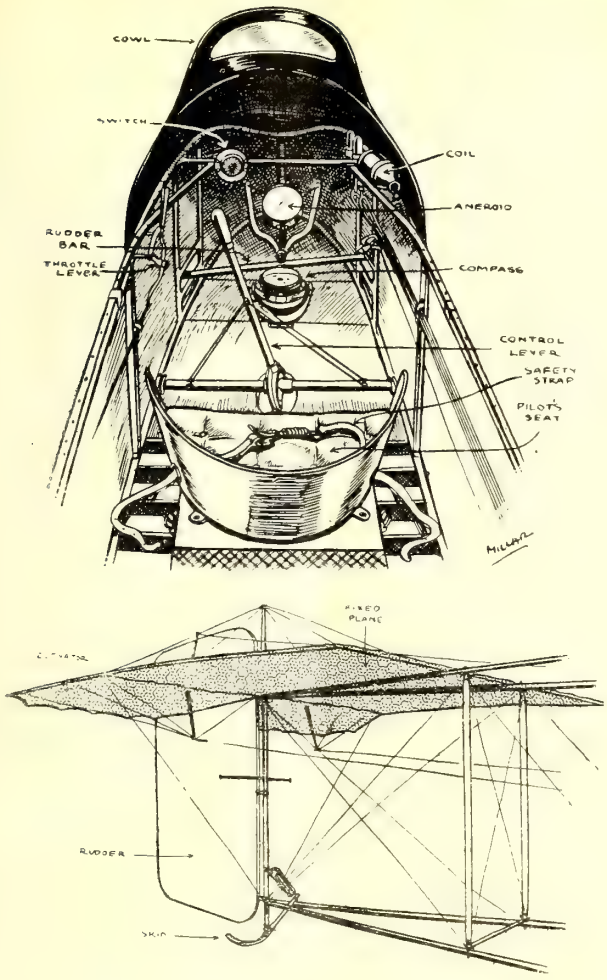
The new Henry Farman biplane used by Mr. Grahame-White for hydro-aeroplane work has many points of difference from that type which is most familiar to the English people. The turgidity of thought and movement common to most in this country is probably responsible for this lack of knowledge, but it is no excuse.

The most obvious difference is that the front elevator has disappeared, and that the tail elevator is non-lifting. The main booms supporting the tail are of steel, and the plan view is triangular instead of quadrilateral. In place of two rudders there is one central directional plane. The elevator is divided into two parts, a sufficient gap being cut to allow of free action of the rudder.

The pilot's seat is some 3 ft. in advance of the front wing spar, and is cased in to a height of 2 ft., with metal sheeting. Immediately behind the pilot are arranged in tandem two passenger seats, both of which are also in advance of the main



Detail Sketches:—(1) Elevator controls; (2) Stay clips; (3) Rudder and tail skid; (4) Strut junctions and cable guides; (5) Skid and steel tubular strut junctions; (6) Heel of main skids, and tubular chassis struts; (7) Tail boom and wooden strut junctions.

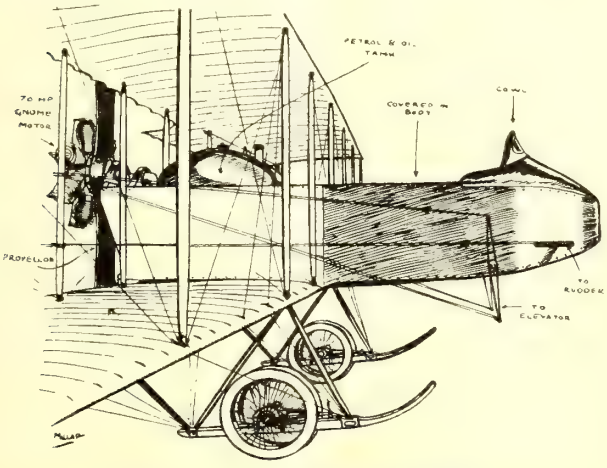


Arrangement of body and cowl. Fixed tail plane and rudder fittings.

planes. The controls differ from the old type Farman in that the elevator-warp lever is placed in the centre instead of at the pilot's right hand.

The chassis is simple and light, and with the exception of the skids is of steel tube.

The planes are of great span and, in comparison, of narrow chord. The ailerons are narrow but of great length, which reduces the necessary lever movement practically by half. The lower plane is shorter than the upper, as on the Paulhan "Londres-Manchester" type.



Body and power plant arrangement.

The speed is about 50 miles an hour, and varies but little whether one or two passengers are carried.—W. E. de B. W.

The Making of British Deperdussins.

This is an uncharitable world, and the early days of the motor trade did not improve one's faith in one's fellow-man; so, when people talked of British-built Deperdussins, I confess to having recollections of "British-built" cars with French names, whose Britishness consisted in their being put together in Great Britain from parts largely introduced into the British works in the capacious folds of French workmen's overalls. However, one day I came across one Lieutenant Porte, late R.N., labouring along Weybridge platform under a load of assorted chassis struts in the raw, and I began to have visions of a London workshop where, at any rate, the heavier pieces of timber were fashioned. Consequently, when Mr Lawrence Santoni asked me one day last week to come and see some British "Deps." being made, I was prepared for a workshop where a machine or two was being constructed from British-made parts; but, frankly, I was not prepared to find a factory in full blast—which is what I did see.

In the beginning the said factory was a tram depôt, and later was concerned with motor-body building. Actually it belongs to Messrs. Max Graddon and Lawson, but soon the one shop first set apart for the aeroplane work was found too small, another was added and then another, and so on, till to-day six shops are full of aeroplane work; and the motor-body building has betaken itself to a neighbouring street.

There is one shop fitted with wood-working machinery, band-saws, planing machines, and so forth. There is an excellent fitting shop, a wing-making shop, and three assembling shops. In these I found some fifty men hard at work, with plenty of overtime, and twelve Deperdussins of the newest type in various stages of construction. Six of these are fast single-seaters, and the rest are either two or three seaters.

The two machines for the Military Aeroplane Competition were nearly finished, and very well they looked—one with a 100-h.p. Gnôme and the other with a 100-h.p. Anzani. I gather that Lieut. Porte, R.N., is to fly the one with the Anzani and M. Prévost the other. A peculiarity in these machines is that the chord of the wings is greater at the tip than near the body, as in Védrines' racing machine. The wings are excellently made, the spars being of I section and built up of three different woods, with the upper flange, which is in tension, of ash. The spars and ribs are "served" with linen strip at certain points, and wherever the main stay bolts come there is a stiffening block fitted on each side of the spar, so that the bolts for the cables do not pierce the spar itself. The fabric used is a special linen which is practically unbreakable, and I am told that Emaillite varnish only makes it stronger, whereas on a cotton material it would make it weaker, or, at any rate, more brittle. Altogether the Dep. wing inspires one with confidence.

The body work, including the tank arrangement, is excellent, and the dual control is cleverly and neatly arranged. The observer's seat is practically over the centre of pressure, and the leading edge of the wings is cut away, so that as good a view is had as on any biplane.

Mr. Koolhoven, the works manager, who took his pilot's certificate on a Hanriot and is one of the best Dutch pilots, seems to get along capitally with his staff of fifty workmen, of whom only a few are French, the rest being British wood and metal workers of a very high class. The pace at which they work and the enthusiasm they seem to put into all they do looks healthy for the future of the firm.

I should like here to place on record the fact that much of the success of the new firm is due to Admiral Fremantle, who, despite his advanced age, has seen the importance of aeroplanes to the Services in a way which quite puts to shame the apathy and slackness not only of the ordinary British business-man, who is always years behind in taking up anything really new, but of men in the Services, who might have done much ere now to advance the state of our aerial defence forces, but still do not realise the part aviation is to play. Admiral Fremantle is very active in the business side of the firm, and devotes much time to its welfare.

Altogether, the future of the British Deperdussin Aeroplane Company, Ltd., looks very bright, and its ultimate success will be only the just reward for Lieut. Porte and Mr. Santoni, who have fought hard under very adverse circumstances up till quite recently.—C. G. G.

The Week's Work.

MONDAY, July 15th.

Brooklands.—At Vickers School, early, Mr. McDonald on *No. 6*. *No. 3* out with Lieut. Beatty, R.E., and Capt. Darbyshire making straights.

At Sopwith School, in evening, Mr. Copland-Perry out on A.B.C.-Burgess-Wright in nasty wind.

At Martin-Handasyde, early, Mr. Bell making circuits on Antoinette-engined machine.

Bristol School, Mr. Merriam first out alone trying conditions. Then with Major Higgins. Mr. Holyoake alone two circuits and a figure 8. Lieut. Wilmer alone two circuits. Capt. Macdonell alone for circuit. Mr. Hotchkiss with Major Higgins. Mr. Hotchkiss, with Capt. Macdonell as passenger, flew to the end of ground to take down a pylon which was greatly in the way for pupils flying. Mr. Holyoake, Lieut. Wilmer, and Capt. Macdonell flying alone. Mr. Merriam with Lieut. Waldron and Major Higgins.

Bridlington.—Mr. Brereton made five excellent flights of about half hour's duration each on his 50-h.p. Blackburn. Ascended from Golf Links and circled out over Bay reaching 2,000 ft. Did several figures of eight over water, and then circled round Bridlington inland. This is first time Bridlington has seen flights in the Bay, and thousands of people who lined the promenade and piers were very enthusiastic.

Farnborough (R.F.C.).—Major Burke on *B.E.1.* and Capt. Mackworth on *B.E.5.*, scouting. Major Moss and other officers out on *F.5.*, all flying well.

Hendon.—Grahame-White School out in force at 4 a.m. M. Noel for a test. Finding all well, he handed over to Capt. Salmond, who made several circuits. Mr. Roupell on 25-h.p. Anzani Blériot, continued rolling practice. On Farman (No. 7) Mr. Wynne straights, and Lieut. Stopford first attempts under steadying influence of Mr. Blackburn. After him came Mr. Hoelscher, with M. Noel over him, and then Lieut. Rathbone and Mr. Cholmondeley, also with M. Noel. Wind now rather puffy, so Capt. Salmond and Mr. Wynne only on straights. Lieut. Stopford, Mr. Hoelscher, and Mr. Cholmondeley repeating their former efforts, while Mr. Roupell, after few minutes' rest, went for second long lesson on Blériot. Lieut. Rathbone out again with M. Noel, but landed with sideway drift, breaking radius rod. This repaired, and Capt. Nicholas out, smashing chassis in pancake after second straight. In evening, Mr. Roupell out, but broke wire after 9 mins. Mr. Wynne again making straights on No. 7, and Mr. Hoelscher and Mr. Cholmondeley up with Mr. Travers. Baroness Schenk making excellent straights, but after landing hurriedly to avoid people, had to turn sharply on ground, strain on tail skid severely damaging tail cellule.

Bleriot School, 6 a.m., Messrs. Sacchi, Hall and Teulade all out on *L.B.2.*, each doing couple of good straights before the wind rose. In evening MM. Gandillon and Teulade put in some more work. Former 3 rolls on *L.B.1.*, and latter 3 good straights on *L.B.2.*

At W. H. Ewen School, Mr. Baumann out on the "Dep." doing circuits and figures of eight, and landing with fine *vols planés*.

Egremont.—Mr. Slack on I.C.S. Blériot arrived from Morecambe.

Mansfield.—Mr. Hucks, on Blériot, made fine flight over surrounding country amid much enthusiasm. Agricultural labourers and trades-people equally interested. In evening Mr. Hucks arranged to carry an aerial post to Chesterfield.

The Plain (R.F.C.).—Capt. Hamilton, on Deperdussin, made five good flights in wind, taking up Mr. Fowler as passenger. Air Mechanic Strugnell on *F.7.* solos four half-hour. Air Mechanic McCudden on *F.7.* in evening passed for his brevêt. Capt. Gerrard, R.M.L.I., and Capt. Broke-Smith, R.E., flew over from Upavon on the Short biplane. Capt. Broke-Smith flew *F.8.* to the Central Flying School, and Capt. Gerrard flew back by himself on the Short biplane. Sergeant Ridd in evening made four flights with Air Mechanic Lewis as his first passenger, after which he took up Air Mechanic Hobby and Driver Carter.

The Plain (Bristol School).—Mr. Busteed out testing monoplane. Mr. Gordon England on tractor biplane. In evening several flights by Messrs. Busteed, Pixton and England.

Waterloo (**Liverpool**).—Messrs. Hardman and Birch straights and turns at nice height with satisfactory landings.

Windermere.—Lakes Flying Company's hydro-biplane *Water Hen* took ten passengers for eleven trips during afternoon, covering over 80 miles all told. Among passengers Miss Gertrude Bacon, the well-known authoress, who flew for 42 mins., making a circuit of the Lake and being the first passenger to do so.

TUESDAY, July 16th.

Brooklands.—At Vickers School, Mr. McDonald up with passenger on *No. 6* testing new propeller. Machine evidently much faster. Then left for Farnborough.

At Hanriot School, Mr. Sabelli out on new Hanriot, flying well in morning.

At Percival School, Mr. Percival out on Caudron early.

At Sopwith School, early, Mr. Copland-Perry on A.B.C.-Burgess-Wright, then on school Farman, Mr. Hedley and Capt. Alston making circuits on Farman.

At Avro School, evening, Lieut. Parke, R.N., alone on Green-engined biplane, then Mr. Simms making straights.

Bristol School, 4 a.m., Mr. Merriam with Willis testing machine, engine missing; then on machine with Mr. Arthur. Mr. Hotchkiss on No. 19 with Major Higgins. Mr. Merriam with Mr. Summerfield ; Mr. Holyoake, Lieut. Wilmer, and Capt. Macdonell flying alone. Mr. Hotchkiss testing No. 62. Mr. Harrison came over from Salisbury on biplane and landed with long spiral glide. Mr. Arthur then flying same. Mr. Merriam up again, taking Willis to observe running of engine.

7.30 p.m., Mr. Hotchkiss, on No. 19, took new pupil, Lieut. Playfair, for first flight. Then with another new pupil, Lieut. Wanklyn. Mr. Merriam on same machine with another pupil. Mr. Hotchkiss on No. 62 with Lieut. Waldron, but an exhaust valve stuck up and had to land. Lieut. Waldron then took control with Mr. Hotchkiss behind, but after two straights the same trouble occurred. Lieut. Arthur alone on single-seater. biplane. Mr. Pickles afterwards on same. Mr. Merriam with Mr. Summerfield and afterwards behind Major Higgins.

Carlisle.—Enthusiastic reception of Mr. Slack on I.C.S. Blériot from Egremont after passing Workington.

Farnborough (R.F.C.).—Early wind gusty. About 4.15 a.m. Major Burke on *B.E.1.*, with observer. Captain Mackworth on *B.E.5.*, also with observer. Major Moss on *F.5.*, doing circuits. All out again in evening.

Foryd.—Mr. Hewitt out for an hour, during which he flew round Rhyl, Abergele, Prestatyn, Rhuddlan, and St. Asaph (St. Asaph is the smallest city in the world). When landing switched off at 500 ft., but, misjudging strength of wind, found that machine would just hit wire fence at edge of aerodrome. Just at point of hitting it Mr. Hewitt pulled *cloche* back with a jerk, and wheels struck about middle of fence. Fortunately, fence posts were rotten, and lay down flat, so that no damage whatever was done to machine. Excellent testimony to strength of Blériot chassis, and Mr. Hewitt's good luck.

Hull.—More exhibition flying by Mr. Hamel before starting for Grimsby.

Grimsby.—Enthusiastic reception of Mr. Hamel flying from Hull. After landing Mr. Hamel gave a second flight. It is reported in the *Daily Mail* that a policeman assisted to start the propeller. Aviators should carefully avoid letting inexperienced hands attempt propeller swinging. It would be poor advertisement for the *Daily Mail* if a police constable was decapitated by propeller of one of their employees.

The Plain (R.F.C.).—Air-Mechanic Strugnell, on *F.7.*, went for brevêt, and took it well. Air Mechanics McCudden and Strugnell are the first two of the mechanics to obtain their brevêts. Capt. Hamilton, on Deperdussin, made four good flights, taking up Col. Percival as passenger. Capt. Carden out on Dunne, flying well. He made two flights, but in the second flight landed heavily and smashed part of under-carriage. Sergeant Ridd on *F.7.* flying for ¾ hour, after which Air Mechanics Strugnell and McCudden made flights. Col. Cooke, Senior Military Officer at Central Flying School, flew over from Upavon on Avro and back again later. Capt. Gerrard flew over from Upavon with Capt. Caudrone as passenger on Short biplane, and returned later. Later another Short biplane arrived from Upavon, piloted by Lieut. Longmore, R.N.

The Plain (Bristol School).—Messrs. Busteed and Pixton out on monoplanes in evening. Mr. Gordon England on tractor biplane, and Mr. Pixton on same machine.

Waterloo (**Liverpool**).—Mr. Melly out with two-seater and took Mrs. Melly to Freshfield on visit to Mersey Aeroplane Co., and then in direction of Southport, turned at Ainsdale and returned past Freshfield hangars and back to Waterloo, averaging 800 ft. Total distance 24 miles.

Windermere.—H.M.A. *Deperdussin* out testing, Mr. Adams taking with him as passenger Mr. E. W. Wakefield, of the Lakes Flying Co., who is responsible for fitting the floats. This authentically the first passenger flight with hydro-monoplane. No further flying until evening, when *Water Hen* out for several passenger trips.

WEDNESDAY, July 17th.

Brooklands.—At Avro School, early, Lieut. Parke, R.N., air testing on school machine. Then Mr. Simms making straights.

At Sopwith School, Mr. Perry on Farman, then Capt. Alston alone. Very windy evening, and no one out.

Bristol School, 4.20 a.m., Mr. Merriam testing and found weather bad, but in spite of it got Lieut. Waldron in pilot's seat and went up behind for two straights. In evening, no machines out owing to weather.

Farnborough (R.F.C.).—Early, Major Burke on *B.E.1.*, Capt. Mackworth on *B.E.5.*, both carrying observers. Capt. Reynolds on new Henry Farman doing several good flights, in one flight taking 2 passengers, machine lifting well. All out again in the evening with M. Moineau on new 100-h.p. Bréguet, flying well; machine very fast.

Skegness.—Mr. Brereton booked at Lincolnshire Agricultural Show at Skegness for week with Blackburn monoplane.

The Plain (R.F.C.).—Capt. Hamilton on Deperdussin, flying in high wind. Major Brooke-Popham out on Avro

Windermere.—Practising improved system of wireless, from machine to shore only, at request of Admiralty.

THURSDAY, July 18th.

Brooklands.—At Avro School, Lieut. Parke, R.N., out on Avro-Green making circuits and figures of eight for 18 mins.

At Vickers School, *No. 5* out for straights with Lieut. Beatty and Capt. Darbyshire. *No. 6* returned from Farnborough, calling at Brighton *en route*.

At Sopwith School, Mr. Copland-Perry out on Farman and A.B.C. Burgess-Wright. Both engines out of sorts. Major Trenchard and Mr. Lane out on Farman after slight delay.

Bristol School, 4 a.m., Mr. Hotchkiss, with Lieut. Atkinson, Mr. Merriam with Capt. Brabazon and Lieut. Atkinson. Mr. Pickles on single-seater biplane at about 300ft. Mr. Summerfield, with Mr. Hotchkiss behind, doing straights. Mr. Hotchkiss again with Capt. Brabazon and Mr. Merriam with Mr. Cheesman. In afternoon Mr. Merriam flew two circuits at 4.30 p.m., when wind quite calm. At 5 p.m. it sprang up suddenly to over 30 m.p.h.

Bournemouth.—New Farman hydro-aeroplane at work with M. Fischer as pilot. Mayor of Bournemouth, Mr. S. MacCalmont Hill, taken up as passenger in afternoon. Evidently a man of considerable weight (16 stone, to be correct).

Eastchurch.—Lieut. Spencer Grey, R.N., out on Birdling monoplane doing straights. Lieut. Briggs on school machine putting in circuits and landing practice; also Private Edmunds practising on school machine.

Farnborough (R.F.C.).—Major Burke on *B.E.1.* with Major Moss as passenger over Fleet and Cove, and circling barracks.

Hendon.—Grahame-White School out 4.15 a.m. Mr. Cholmondeley up with M. Noel behind him, and after making first flights alone. Then Capt. Salmond out for 12 mins. doing circuits, and Mr. Wynne doing straights.

At Bleriot School, M. Sacchi had *L.B.2.* out in early morning and did 3 good straights.

At Aircraft Co., M. Verrier on Maurice Farman up in afternoon with passengers.

Market Drayton.—Mr. Hamel doing exhibitions on two-seater alone, not taking passenger owing to small ground. Occasion that of local flower show at Hinstock, four miles from nearest station and quite 8,000 people there, including many from Shrewsbury, 18 miles away.

Nottingham.—Mr. B. C Hucks, on 70-h.p. Blériot, left Chesterfield about 11 a.m. and had very bad journey in wind and heavy clouds. Landing ground not over good, and machine only just saved from running into a ditch by smartness of pilot in jumping out and holding on. Mr. Hucks up again for exhibition flights in evening, and again had rough passage, fortunately without accident.

Raglan, Monmouthshire.—Arrival of M. Salmet from Cardiff. First flight since illness. Started for Ross-on-Wye, but suffered from Gnôme troubles after 24 miles, and came down.

Skegness.—Mr. Brereton made pretty circuit in spite of bad weather, rising from show ground and striking out to sea, circling round town, and then alighting at starting place. This again was first aeroplane flight witnessed in Skegness district, and goes to credit of Blackburn monoplane.

The Plain (R.F.C.).—Major Brooke-Popham on Avro made four flights, taking up as passengers Major Ashmore and Air Mechanics Hobby and Pratt. Later Major Brooke-Popham another flight, to 1,600 feet. Capt. Hamilton out on Deperdussin.

The Plain (Bristol School).—Mr. Pixton testing monoplane with mechanic as passenger. Mr. Busteed also on monoplane. Mr. Busteed in evening for solo.

Waterford.—Mr. Percival giving exhibition flight on Caudron biplane, was induced to go up before wind had dropped enough to be safe, hit a bank, turned a complete somersault and escaped unhurt. Machine little damaged. Mr. Percival, as usual, grateful to safety belt which prevented him from diving through upper plane as Mr. Ewen did at Hendon.

Windermere.—Rather too much wind, until visitors tired and left to get dinners. Then quite calm. Sample remarks:—(1) Charming lady, after full explanation: "And which end was it did you say made all the noise?" (2) Gentleman to his wife, pointing to warping control bracket on under-carriage: ". . . And that is the passenger's seat. You see I know all about it because Mr. Wakefield himself told me only an hour ago."

Wormwood Scrubs.—The Army airship *Gamma*, with crew of five, arrived in London from Aldershot, having flown over the King's Garden Party at Windsor on the way. Landing at Wormwood Scrubs very neatly done as machine was brought down to leeward of big shed and then carefully manœuvred in. Framework much twisted by over-enthusiastic crowd handling it.

FRIDAY, July 19th.

Brooklands.—At Vickers School, Lieut. Snowden-Smith's little Farman, now bought by Vickers for early instruction, out with Mr. McDonald, Lieut. Beatty, Mr. Hunter and Capt. Darbyshire, all enjoying novel sensation.

At Martin-Handasyde's, Mr. Bell out on Chenu-engined machine for first flights. Machine very fast and flying strongly.

At Sopwith School, early, Mr. Perry on Farman, then Capt. Alston made brevêt flight sin excellent style. Mr. Hedley then out alone.

At Avro School, Lieut. Parke, R.N., air testing on school machine. Mr. Simms then made 3 circuits in fair wind. Lieut. Parke then took up *No. 3* War Office machine, with Mr. Bell as passenger, intending to deliver at Farnborough. Finding wind extremely bumpy over Woking way, returned after a few minutes.

Bristol School, Mr. Hotchkiss alone; weather rather bumpy, but decided to send Lieut. Wilmer for brevêt. He flew first five 8's in about 20 mins., and landed perfectly, but complained very much of weather. Mr. Hotchkiss then went up, and decided Lieut. Wilmer could please himself about continuing, which he decided to do. He flew his second five 8's at about 100 ft. and landed right on the mark. Considering the weather this was a really good performance. Mr. Merriam then with Capt. Brabazon, but decided weather was too bad. In evening, no flying owing to rain.

Moffat.—Mr. Slack on I.C.S. Blériot arrived at Wamphray in full gale. Very inhospitably received when motored to Moffat, and never wants to see the place again.

Bournemouth.—Mr. Fischer on Henry Farman hydro-biplane flying well in stiff breeze, and taking passengers.

Ross-on-Wye.—M. Salmet arrived from Raglan; enthusiastically received by crowd of some 12,000. Passing over Monmouth, M. Salmet dropped two letters addressed to Mayor of ancient town.

Eastchurch.—Private Edmunds flew for brevêt, but was unable to land sufficiently near mark.

Farnborough (R.F.C.).—At 3.30 a.m., Major Burke on *B.E.1.*, with Major Moss and Capt. Reynolds on Henry Farman, with Capt. Raleigh, observing field operations over Blackdown and Deepcut. Lt. Harrison on *F.5.*, Mr. de Havilland flew to Salisbury with Major Sykes as passenger in evening. Major Burke flights on *B.E.1.*, Capt. Mackworth 20 mins. on *B.E.5.*, and later on *B.E.1.* Several officers out on *F.5.*

The Plain (R.F.C.).—Major Brooke-Popham out first on Avro testing. Later on five people taken for passenger flights by Major Brooke-Popham. Aircraft Factory biplane *B.E.2.* arrived from Farnborough, piloted by Mr. G. de Havilland, with Major Sykes, C.O., Military Wing, R.F.C., as passenger. In evening Major Brooke-Popham out on Avro for twenty mins. in choppy wind, reaching 1,500 feet. Mr. de Havilland also out for twenty mins.

The Plain (Bristol School).—Messrs. Busteed and Pixton made flights. Messrs. Gordon England, Pixton and Busteed all out in evening.

Windermere.—Moderate gale, 35 to 50 m.p.h. Busy further

strengthening two sheds built by London firm. The one built locally showed no signs of going.

SATURDAY, July 20th.

Brooklands.—At Vickers School, early, Lieut. Beatty out on *No. 5* machine, now flying well. Capt. Darbyshire then made turns and first circuits. Mr. Hunter on Farman. In evening Lieut. Beatty out on *No. 5* and Mr. Hunter on Farman.

At Avro School, Lieut. Parke, R.N., air testing on school biplane. Then Mr. Simms made a short flight and flew first half of brevêt tests. In evening Mr. Raynham took out *No. 3* War Office Avro for 10 mins., Lieut. Parke having been recalled from leave to join Naval Wing of Royal Flying Corps at Eastchurch. Mr. Raynham has undertaken to deliver this machine to War Office.

At Hanriot School, Mr. Sabelli out on Hanriot before breakfast, then out across country, landing in a cornfield near Guildford owing to losing his way in mist. Machine turned over by corn, which pilot mistook for grass, and rather badly smashed. Mr. Sabelli ornamented with remarkable bumps, but not otherwise hurt.

At Martin-Handasyde's, Mr. Bell out on Antoinette-engined machine performing amazing tricks in evening, to great joy of spectators.

At Spencer School, Mr. Spencer out every now and then during afternoon and evening.

At Sopwith School, early, Mr. Perry on A.B.C.-Burgess-Wright. Major Trenchard making first rolls on Farman in promising style. In evening Mr. Perry giving instruction to Mr. Lane on Burgess-Wright, and Major Trenchard again rolling on Farman.

Bristol School, 5 a.m., Mr. Merriam with Capt. Brabazon and Mr. Summerfield. Mr. Lindsay Campbell, Mr. Holyoake, and Capt. Macdonell up alone; Mr. Merriam with Mr. Cheesman, Lieut. Atkinson and Mr. Summerfield; Major Higgins alone for straights. At 5.30 p.m., Mr. Merriam for exhibition flight, after which school work. Mr. Hotchkiss with Lieut. Atkinson. Mr. Merriam with Capt. Brabazon. Mr. Hotchkiss with Major Ashton. Lieut. Arthur alone on single-seater biplane. Mr. Hotchkiss with Lieut. Duberly. Mr. Merriam with Mr. Summerfield. Mr. Hotchkiss behind Major Higgins. Mr. Merriam with Mr. Cheesman. Lieut. Arthur with Lieut. Duberly for tuition. Mr. Hotchkiss with Capt. Brabazon. Mr. Merriam with Major Ashton. Mr. Lindsay Campbell alone on single-seater biplane, then with Major Madocks on No. 19. Mr. Hotchkiss with Lieut. Playfair. Mr. Merriam with Lieut. Wanklyn. Mr. Pickles alone on single-seater. Major Higgins alone for straights. Mr. Merriam with Lieut. Atkinson. Mr. Hotchkiss behind Mr. Summerfield. Mr. Merriam behind Lieut. Waldron, and latter up alone for straights. Lieut. Arthur on single-seater biplane. Altogether Bristol School machines made about 30 flights, and there was continually one or more in the air until dark. Messrs. Hotchkiss and Merriam are fully keeping up the standard of industry set up by Messrs. Fleming and Pizey.

Eastchurch.—Capt. Gordon, R.M.L.I., out on Henry Farman, taking as passenger Lieut. Briggs to a height of some 2,500 ft. and finishing with spiral glide. Mr. Jezzi out on Jezzi biplane, doing circuits, but was obliged to stop owing to loss of some magneto bracket bolts. Mr. Alec Ogilvie out on N.E.C.-Wright, later on taking as passenger Miss G. Brown.

Farnborough (R.F.C.).—Mr. de Havilland back from Salisbury with Major Sykes as passenger at 2,000 ft., doing good time. M. Moineau on 100-h.p. Bréguet doing War Office tests. Later Mr. de Havilland on School Bréguet. Lt. Harrison on *F.5.*, for 20 mins. Major Burke, on *B.E.1.*, when starting out, through some cause cannoned into *F.5.*, doing considerable damage to both machines. Capt. Reynolds out on Henry Farman giving instruction to Major Moss, later Major Moss doing straights, and handling machine quite well.

Airship *Gamma* arrived back safely despite damaged frame.

Hendon.—No biplane school, as engine badly in need of cleaning. Mr. Fowler had hour's practice on Anzani-Blériot. Competition flying described in special report.

Hereford.—M. Salmet, after giving exhibition flights at Ross, flew on to Hereford, reaching the city in 15 mins., afterwards giving exhibition for 25 mins.

Hinckley.—Mr. Hamel flying for local Conservative Association. Small ground, with bad slope wrong way of very bad wind. Machine hit hedge with Mr. Hamel, who had jumped out to stop it, underneath. Neither pilot nor machine badly damaged, wing and propeller hurt. Behaviour of certain of promoters no credit to their political party, as they insisted on second flight—which they did not get. Rather good dodge to attract reluctant crowd to political meetings. Mr. Hamel further drove home political creed by distributing party leaflets from machine.

The Plain (R.F.C.).—Major Brooke-Popham out on Avro for five flights. Four times passengers were taken. Mr. de Havilland returned to Farnborough with Major Sykes as passenger on *B.E.2.*

The Plain (Bristol School).—Several solos in morning by Messrs. Pixton, Busteed and Gordon England.

Waterloo (Liverpool).—Mr. Melly on two-seater in 20-mile wind flew to polo ground at Childwall without passenger at height of 1,000 ft. Wind exceedingly treacherous, but made magnificent *vol plané* into middle of the polo ground enclosure before large number of people attending the annual sports. Unfortunately gust of wind between grand stand and trees caught machine after touching ground, with result that both wheels buckled and propeller smashed. Fortunately, other damage done not great.

Gorebridge.—Mr. Slack on I.C.S. Blériot arrived from Moffat. Glad to get anywhere away from it. Took 105 mins. for 70 miles against gale, and got within 12 miles of Edinburgh.

SUNDAY, July 21st.

Brooklands.—At Vickers School, early, Lieut. Beatty made test flight on *No. 5*. Capt. Darbyshire then made test flights for brevêt on *No. 5* with great success, flying very steadily at 300 ft. throughout. One of best brevêt flights seen for a long time. Incidentally, first pilot to take certificate on a Vickers. May it be a happy omen.

At Avro School, early, Mr. Simms on school 'bus, and showing every promise of keeping up standard set by previous Avro pupils.

In afternoon much activity. Nearly as many pupils and pilots as spectators for a fine evening's flying. Wonderful exhibition of box-kites, reminding one of a 1909 aviation meeting. Vickers-Blondeau-Hewlett-Farman, Spencer, Sopwith-Farman-Blondeau-Hewlett, and three or four Bristols all evoluting together. Mr. Knight on Vickers-Farman flying well. Queue of Bristol pupils waiting for turns with Messrs. Hotchkiss and Merriam, like crowd at turnstile of scenic railway. Lieut. Desmond Arthur on Bristol without extensions flying well, but engine evidently not up to mark.

Then Mr. Lindsay Campbell took up a pupil as passenger on same machine and flew two appalling circuits with top plane of tail about level with skids. Insisted on trying to force machine up at corners, staggered out over track, river, and paddock, crossed sewage farm once, repeated previous performance over river, and, finally, with machine dropping worse and worse, tried to cross sewage farm again, and pancaked into it. Fortunately passenger and machine escaped unhurt. The pilot was not injured either. Quite the worst exhibition of flying ever given at Brooklands by a certificated aviator with a passenger, and showing evil of short course of training, as pilot evidently simply did not know the danger he was in. Passenger, having only been up about once before, was happily oblivious of anything being wrong. One gust of wind on any of their turns and there would have been as bad a smash as ever happened.

Other Bristol pilots and pupils flying well. Mr. Copland-Perry on Mr. Sopwith's A.B.C.-Wright and on school Farman flying very prettily. Lieut. Beatty on Vickers *No. 5* did two capital flights, second time going right out towards Chertsey to salute some friends at their house. Finally, very late, Mr. Gordon Bell flying well on the Martin-Handasyde with Chenu engine of 100-h.p., rumoured to give 132 on brake. Mr. Spencer flying well and steadily. Mr. Raynham, tuning engine of third military Avro, flying in beautiful style and impressing the crowd, such as it was, very favourably.

Eastchurch.—Mr. McClean on 70-h.p. Short tractor, which has now been fitted with new wings since the Eastbourne wettings; he afterwards took up as passenger Mr. Marshall. Mr. Ogilvie out on N.E.C.-Wright, taking as passengers Messrs. Marshall and Fowler.

Hendon.—At W. H. Ewen School, Mr. Ware out on new Blériot, flying well. Messrs. Apcar, Lawford, Gist and Warren also making good straight flights. Messrs. H. James, J. H. James rolling on same machine.

Mr. Ewen has now returned to aerodrome with 60-h.p. two-seater Caudron biplane, which is being cleaned and reassembled. Exhibition flying described in special report.

The Plain (Bristol School).—Mr. Busteed out on several types of monoplanes, as also Mr. Pixton. Mr. Gordon England on tractor biplane, taking Mr. Barnwell and other passengers, machine climbing well.

The I.C.S. Tour.

Mr. Seymour Norton, writing of Mr. Slack's progress, says :—

"As I said last week, Slack was forced by the mists to alight near Egremont, in Cumberland, on Monday evening, July 15th. The two cars had a great job locating him, but were assisted in the most praiseworthy fashion by the police and by the operators at the various telephone exchanges. All through this tour our party have had the enthusiastic assistance of all grades of the county police, and their efforts have been well backed up by the telephone girls in the country post offices. Cumberland is renowned for its hospitality, and Slack was received like a long-lost son at the farmhouse where he descended, while everybody else was made very welcome.

"That evening and next day all West Cumberland came to view the machine, the police experiencing some difficulty in handling the crowds. About 5.30 on Tuesday evening Slack started on his next stage, passing over Workington, and thence following the Maryport and Carlisle Railway to the county town. Over Wigton he encountered an air-pocket of considerable magnitude and made a nasty dive, but soon straightened himself out. Nearly everyone in Carlisle had turned out to see him arrive, the police estimating the crowd around and on the old racecourse at 20,000 people. Slack was well seen by all, and made a splendid descent on the ground (which formed one of the controls for the *Daily Mail* Circuit last summer) after about an hour's flight—the distance being fifty miles or thereabouts. The weather was gusty, and he encountered frequent banks of thick mists. To make up for his cold flight Carlisle gave him the warmest welcome yet experienced, and all the party were royally treated.

"The penitential weather that has dogged the progress of the I.C.S. tour caused the start for Edinburgh to be postponed until Friday morning, July 19th. At 4.45 a.m. Slack set off, following the line of the Caledonian Railway, but when he was well over the border he encountered an icy-cold wind from the north that nearly stopped him. Indeed, he affirms that he was overtaken and passed by a Glasgaw train when near Lockerbie! Finding the gale getting worse, and being almost frozen, he descended near Wamphray Station, having taken nearly 1¼ hours to traverse 36 miles. The cars picked him up almost immediately, and the party went on to Moffat, the nearest place with hotels and post office. Their welcome was of the chilliest, and all aviation parties are advised to give Moffat a wide berth; this inhospitable treatment came very unpleasantly after the noble times experienced at Carlisle.

"Naturally, everybody longed for a break in the weather so that they could move on somewhere else. In sheer desperation Slack started out at 4.5 p.m. on Sunday afternoon in a wind that grew to be the strongest gale he has yet met. He crossed the Lead Hills in the teeth of the wind and battled away towards the north-east, every yard costing a severe struggle. He must have lost the Caledonian Railway soon after crossing the hills, and he could not identify the towns over which he passed. Finally, finding that he was being carried to the eastward of Auld Reekie, and that the long struggle at full power had nearly exhausted his petrol, he came to earth at 5.50 p.m. He found himself at Gorebridge, about twelve miles from Edinburgh by the Waverley route of the N.B.R. The distance covered in those 105 minutes is probably a little more than 70 miles.

"After a night's rest Slack got ready early. He had to wait a few hours more as the wind was still high, although it was shifting its direction. Just before 1 o'clock on the afternoon of Tuesday, the 22nd, he got up and, with the wind helping him this time, flew the remaining 11⅓ miles to the landing place at Corstorphine in just over 9 mins. The final burst of speed that brought him to Edinburgh was most welcome after the slow flights immediately preceding it."

Further Notes on the Military Competition Machines.

Since publishing on July 11th the first authentic particulars of the machines for the Military Aeroplane Competition, various further developments and certain modifications have taken place and are worthy of note.

Vickers, Ltd., have completed a new machine which is faster and generally better than the No. 6, which is itself recognised as being one of the best two-seated monoplanes in this country. It will be well worth watching.

The Blériot machines may be flown by M. Perreyon if Mr. Hamel is not available.

Bréguet Aeroplanes, Ltd., hope to get two British-built machines through in time for the trials, and these are being built at Willesden.

The Bristol pilots will be Messrs. Valentine, Pixton, Busteed, and Gordon England. The firm has just produced, to M. Coanda's designs, a new monoplane with a long body and a fixed tail-plane, which is said to do over 75 miles an hour with an 80-h.p. Gnôme. In this streamlining is carried to an extreme point, and the machine looks like a torpedo-boat destroyer, the upper masts having the appearance of funnels. On the points of the skids it carries two small wheels *à la* Cody.

The British Deperdussins are to be piloted by Lieut. Porte, R.N., and M. Prévost; and M. Deperdussin himself is only sending over one machine, which will be piloted by M. Védrines. In these machines the wings have a greater chord at the tips than near the fuselage, as in the firm's single-seater racing machines.

Mr. S. F. Cody hopes, after all, to get his monoplane repaired in time to compete, but can scarcely get both machines through.

Air-driven Motor Cars.

Some of the illustrated papers recently made much fuss about a motor-car driven by a propeller, which travelled from Paris to Lyons, the propeller being the well-known "Aile Rotatif Cyrnos"—which was, of course, described by the Press as a new kind of wing, and incidentally was reported as being in the front of the machine. Therefore, it may not be without interest to recall that last summer Mr. Ronald Charteris, Mr. Dashwood Lang, and Mr. Granville Bradshaw drove an all-British machine propelled in this manner from Southampton to Brooklands, the engine being a 40-h.p. A.B.C., and the propeller one of Mr. Lang's design. Also, something like three years ago M. Anzani attained a speed of something like 60 m.p.h. on a bicycle driven by a motor with a tractor screw, but found he could not get round corners.

The Debut of the Handley-Page Monoplane.

On Monday evening the writer had, with Mr. T. O'B. Hubbard as his colleague, the pleasure of acting as observer at one of the most interesting brevêt tests which has taken place—namely, the taking of his certificate by Mr. E. Petre—more commonly known as "Peter the Painter"—on the first Handley Page monoplane to fly. Mr. Petre is quite one of the old hands in aviation, and flew a little on the old original Flanders monoplane, but nearly a year ago he joined Mr. Handley Page in his experiments with his automatic stability machines. Monday saw their first public success.

The machine is in general principles like the one shown at the Olympia Aero Show, but the wings are modified considerably, and the body is longer and deeper; in fact, at first glance the body looks like a R.E.P. Despite a Gnôme engine which was pulling badly, and missing as well, the machine climbed excellently, and banked on the turns in a way which was quite alarming till one got used to it and saw that it was quite natural. Owing to the backward sweep and up-turned tips of the wings and the deep-breasted body, the machine is singularly beautiful in the air, and has the same bird-like appearance as the Etrich and other machines on the principle first introduced by Mr. José Weiss.

Just why this type is automatically stable, as it appears to be in fact as well as in theory, it a matter productive of much argument, but that Mr. Weiss's theories have again been proved correct seems almost indisputable.

It is, of course, the more satisfactory that the first certificate to be won on the machine was taken by one of its constructors, who may, after all, be said to have learned to fly on this machine. It may be remembered that some months ago The Aeroplane alone reported that Mr. Petre had flown from Fairlop to Barking. Since then the machine has been much modified, and was not brought out again till the last week-end. Its immediate success is a happy augury for the future of the more powerful machine which has been built for the military competitions next month.

Mr. Petre's first five figures of eight were made in 8 minutes, including an extra turn to get head to wind for landing. The second set took 6½ minutes, including the landing, though the actual eights themselves only took 5½ minutes. As the machine only flies at about 50 miles an hour, it may be seen that he did not waste much room at the turns. His maximum height was about 650 ft., reached easily in the course of the second flight. The machine lands excellently, but, the ground being as hard as rock and as smooth as a tennis-court, it rolled much too far after landing, though every time it passed over the mark. Consequently, Mr. Petre did two extra landings, and got inside 45 yards

each time. As he had never practised landing on a mark, this was uncommonly good.

The whole performance was excellent, and shows that we have now a new machine and a new pilot which and who are likely to make some stir in aviation. Mr. Page and Mr. Petre deserve every congratulation on a well-deserved success, for they have really worked for it.

The Dublin-Belfast Race.

It is most regrettable that the Irish Aero Club should have decided, as they have done, to use the Leopardstown Race-course as the starting-point for the Dublin-Belfast and back race. If there should be any wind in any direction, the place is bad, and, if there be a south-west wind, it is a positive death-trap. Should any of the competitors be killed in starting or landing, their blood will be on the heads of the organising committee, jointly and severally, for they have been warned of the danger in plenty of time to fix on another ground. However, let us hope that all will go well, and that the estimable gentlemen of the committee may remain guiltless.

Leopardstown is in a basin, with mountains round the southern half of it, and when the wind is blowing over these mountains it causes a downward drive which makes it hard enough for a machine to get up, apart from the fact that the trees and foothills of the mountains cut the wind up into appalling gusts. From Leopardstown to the south shore of Dublin Bay the country is heavily wooded, thick with houses, cut up into tiny fields edged with stone walls, many of them 15 ft. high, and intersected with roads. And all this danger is to be incurred because the country round Baldoyle is so open that numbers of people may get free views, and because there are some posts about which would be difficult to remove. However, if the weather is good, the meeting will be a success; but it may be a tragedy. Let us pray for calm weather.

Progress at the Vickers School.

Vickers, Limited, having carried out a great deal of valuable experimenting with machines of various types, are now devoting attention to the organisation of their school at Brooklands, where they have five sheds ready for school machines.

Captain H. F. Wood, the chief of the Aviation Department, has wisely decided to train the firm's pupils on a properly-graded system. The firm have recently bought the smaller of the British-built Farman biplanes constructed by the Blondeau-Hewlett firm, and it will be used to give pupils their first idea of the control of an aeroplane alone and as passengers. After gaining elementary knowledge on this machine the pupils will have the use of the old *Vickers 2* and *3* for rolling and straight flights, so as to get used to monoplane control, after which they will be passed to to *Vickers 5* for circuit flying and certificates.

In order to give them still further experience *Vickers 6*, which is certainly one of the fastest two-seater monoplanes in this country, will also be kept at the school. This machine does approximately 70 m.p.h. with its 70 h.p. Viale engine. It is a two-seater with dual control, the pilot and passenger being placed side by side, so that the passenger can watch every movement of the pilot, and when the pupil has proved himself sufficiently expert on the other machines, he may be placed in charge of the fast machines with an experienced pilot on board to see that he does the right thing.

After a course of tuition on this system it ought to be possible for a pupil to take over almost any type of machine and do a big flight on it after just enough practice to get accustomed to the weight of the new machine. The firm have a particularly able staff of mechanics and pilots at Brooklands, so the machines should always be in excellent order.

Bristol Movements.

Owing to the need for accommodation for machines competing in the Military Aeroplane Competition on Salisbury Plain, the Bristol Company have handed over certain of their sheds, which are on War Office property, to the military authorities. As a result the whole of the Salisbury Plain School has been moved to Brooklands with the exception of the pilots, who are remaining on the Plain to practise on the Bristol machines which are to be used in the trials. The result is that there is likely to be considerable activity at Brooklands during the next few weeks, though it strikes one that the two Bristol pilots, Messrs. Hotchkiss and Merriam, good as they are, will have plenty of work to do.

The Bristol pilots generally seem to have turned into regular globe trotters lately. Mr. Pixton, after flying for some time in Spain, and then in Germany, returned to England for a while, while M. Jullerot went to Germany, and Mr. Harrison joined Mr. Busteed in Spain. Then Mr. Pixton and Mr. Kemp went to Germany and started up a new school in the Hartz mountains, where Mr. Kemp remains as pilot for the German Bristol Company. Mr. Busteed has come back for the Military trials and Mr. Harrison has come back with him, while M. Jullerot has gone to the Spanish School.

In the meantime, Mr. Pizey has been paying a flying trip to Constantinople, presumably with the idea of interesting the Turks in British machines. The Bristol pilots in the trials will presumably be Messrs. Valentine, Gordon England, Busteed and Pixton.

Mr. Petre's Appointment.

His many friends among those connected with aviation will be pleased to hear that Mr. Henry Petre, more generally known as "Peter the Monk," has obtained one of the two appointments offered by the Government of the Commonwealth of Australia. He will be shortly leaving this country to act as instructor to the aerial forces of the Commonwealth, and his absence will be regretted by those who welcome his success.

Where to Buy Models.

In these days when everybody is interested in aviation, it is just as well to encourage the young idea, and so models should by no means be despised. Incidentally, model aeroplanes make an excellent method of absorbing the energy of exuberant youth home for the holidays. At the same time, it is just as well to be sure of buying the right thing, as there are so many models on the market which do not fly and only lead to awkward questions from recipient to donor. Therefore, those who want to give their juvenile relations the best type of model, which will not only keep them busy on account of the length of its flight, but will actually afford them useful education, will do well to get the new illustrated catalogue issued by Mann and Grimmer of Surbiton.

"How are the Mighty."

There is a touch of humour, and almost of pathos, in the news that Mr. James Radley, once one of our finest Blériot fliers, won the Mortimer Singer Cup on July 13th, by drifting in a spherical balloon for 132 miles from Hurlingham to Market Drayton. And he is still quite young.

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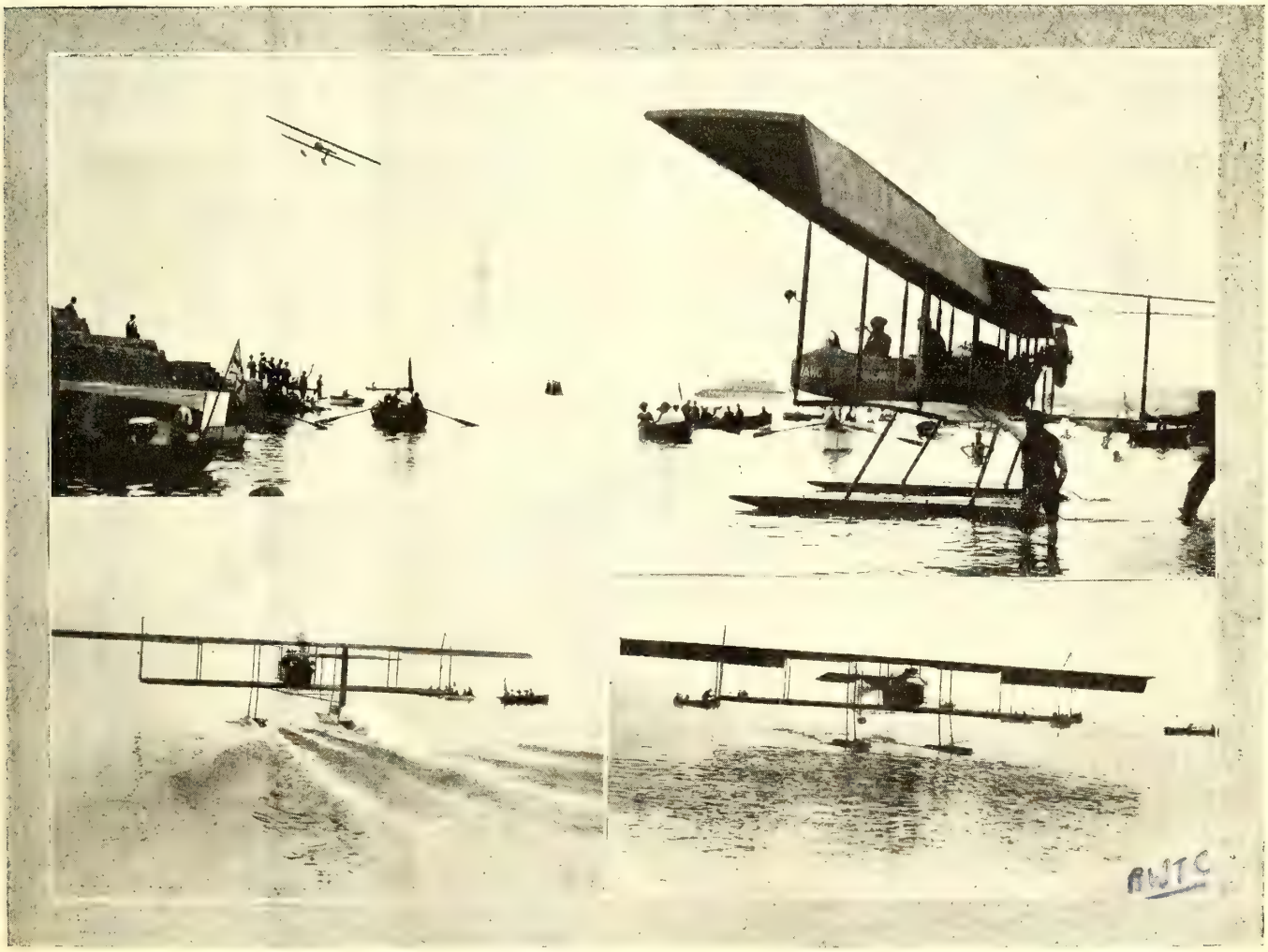
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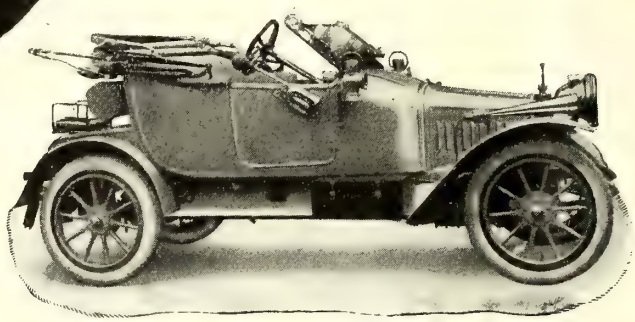
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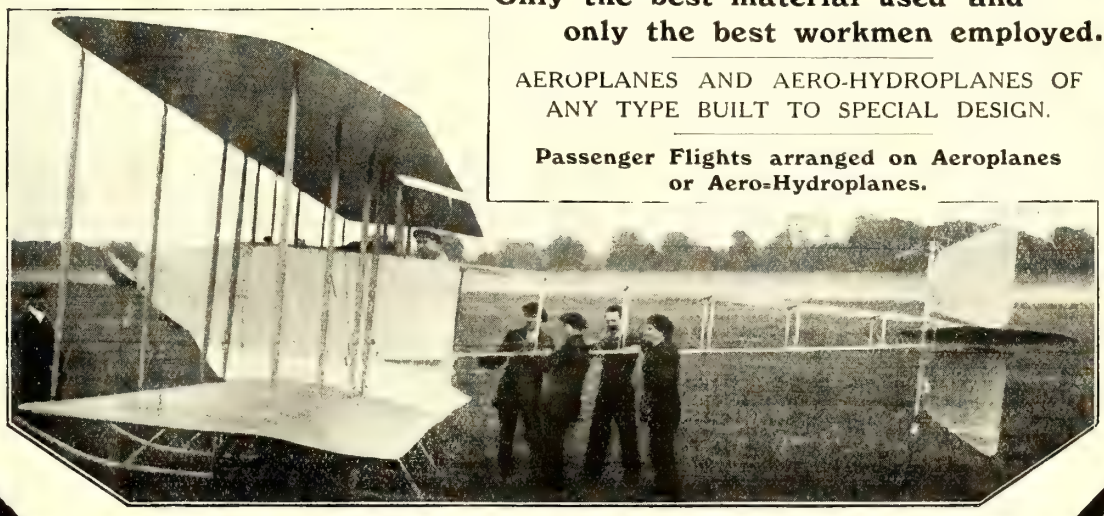
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Pensions and Decorations.

BY W. E. de B. WHITTAKER

The entry of a new arm into the Service causes obvious complications. Its relation to the other arms has to be regulated and codified. Questions of *personnel* and *matériel* have their respective differences and difficulties. There is no available precedent, and tradition has to be created, not followed. There is rarely anything of pleasure to the ordinary soldier in the formation of the new corps. The Staff officer, with his predilection for paper and mental mathematics, may find a fleeting joy in the fever of academic organisation, but it soon fades under the stress of work and the necessity for continuous and unvarying tact. It is fortunate that the slow rate of human advancement only calls for a new section of the extermination Service at intervals of a hundred years and more.

Aviation has entered the field, and the War Office awakes momentarily from its dignified slumbers to show a politic interest in the new science. The organisers are hard put to it in the arrangement and pigeon-holing of the future. Never in history has any similar Service been formed. In the Army, in any case, there has never been a corps in which the risks of existence are but little less great in time of peace than in time of war. This risk affects everything. It demands additional inducements for entry, though in practice risk is in itself a sufficient inducement to the average soldier. It affects the ordinary rules of seniority, for in it "youth must be served." There is no place in it for officers of advanced age and fixed opinions. The principles regulating military aeronautics are nebulous and undecided, ever subject to change. In this country the preliminary details of organisation have been arranged, and the Royal Flying Corps is now an integral part of the British Army and Navy. It will continue to exist, for it has all the requirements of life. Everything cannot be thought of in a moment, and it is absurd to expect a perfect organisation to spring into being in a year, or even in ten years.

According to their own lights those in whose hands the arrangements of affairs has been have done their best, but in the lack of detail on certain points a public pronouncement of policy is needed. The point at present disturbing the minds of officers on the active list is the question of compensation allowances and pensions for injuries received on service, and of the method of the distribution or rewards. The position is not satisfactory at the moment.

Army life is, of course, divided into two great sections —peace and war; and whatever the effort may be to make the existence under both conditions as similar as may be, the resemblance is never very strong. Manœuvres are to war, for instance, what a stage drawing-room scene is to real life—a counterfeit presentment in which the gilding is predominant. In times of peace, authority is a little liable to forget that war is at all a likely occurrence, and affairs are managed with equal lack of memory. On the other hand, the risks to the life of the ordinary soldier are multiplied to a high degree in war time. With this in mind, and the comfortable reflection that peace appears to be constant, the War Office is moderately liberal to those who in war may leave some portion of their anatomy on the field of battle. There are also allowances for injuries received in times of peace, but they are infinitesimal in size. The great numbers of rewards and decorations for military services do not operate when peace rules the land.

The military aviator, unlike any other soldier, is constantly on active service—that is to say, the risks of life increase but little in war. The daily practice required to keep him in a state of efficiency has dangers quite as fatal in their effects as has an accidental collision with a 12 lb. shell on the field of battle. A bad landing, a high wind, or a defective wire may each cause material damage to the existence of the aviator. As Colonel Seely has said in one of his periodical paroxysms of patriotic prose, "an aviator is always on active service." Therefore his compensation for injuries received in the service of the King should not vary in peace or war, and the scale should be officially laid down as early as possible.

The Royal Warrant on the "Pay, etc., of the Royal Flying Corps (Military Wing)" says that:—

"(14) Officers who are—

(*a*) Members of our Royal Flying Corps,
(*b*) Members of our Special Reserve of Officers (Royal Flying Corps),
(*c*) Undergoing a private course of instruction, having previously been selected by our Army Council for military flying work,
(*d*) Undergoing a course of instruction at the Central Flying School,

shall, if injured on flying duty, be eligible for gratuities and pensions under the conditions and at the rates laid down in the Pay Warrant for officers who have been wounded in action." Similar regulations apply to N.C.O.'s and men.

It is important that this section of the Royal Warrant shall be carried into effect without the irritating delays which occur in the case of officers wounded on service. It should include those officers whose nerve and general health have been wrecked owing to a bad accident, though they have no particular wound or disease to state. And all gratuities and pensions should be at the rate of pay due to the temporary rank of the officer injured, and not his substantive rank.

The question of decorations is also involved. There is nothing in the Royal Warrant by which the V.C. or even the D.S.O. can be granted for flying services in times of peace. Under the peculiar conditions of the service a soldier may do as brave a thing flying when no mortal enemy is in the field as in the sharpest battle in history. And if decorations and medals are granted at all "for valour," they should be open to the Royal Flying Corps at all times.

In France, where government proceeds on curiously methodical lines so far as detail is concerned, the question of rewards and pensions is settled definitely. All officers in the aeronautic Service are treated as on active service, and are subject to the same conditions. All military grades of the Legion of Honour may be bestowed on military aviators, and many of the most distinguished wear the ribbon to-day. The Ministry of War is commendably prompt in its recognition of gallantry. On many occasions bravery has been rewarded within a few hours of the commission of the specific deed. Such promptitude is magnetic in its effects and aids efficiency to a great degree.

Cannot this country copy the excellent example of our friendly neighbours? The most deadly mistake would be the foundation of a special decoration for the Royal Flying Corps. Such a move would annoy most and please none. But it is the sort of thing we do in a blundering attempt at originality.

The French Ministry of War published on July 5 a decree regulating the special indemnities open to the Aeronautical Corps and incidentally settling some points of procedure. The text of this document is of considerable length, containing six chapters of twenty-four articles in all. It ordains that at each centre of aviation a register shall be kept of the services of each individual in the aeronautic section. A similar register will be maintained by each O.C. an *escadrille*. On dirigible balloons an actual log-book is to be kept, detailing each event minutely. Thus no ascension of any officer on a dirigible balloon, an aeroplane, or a kite escapes record. A similar system probably holds, or will hold, in the British Services.

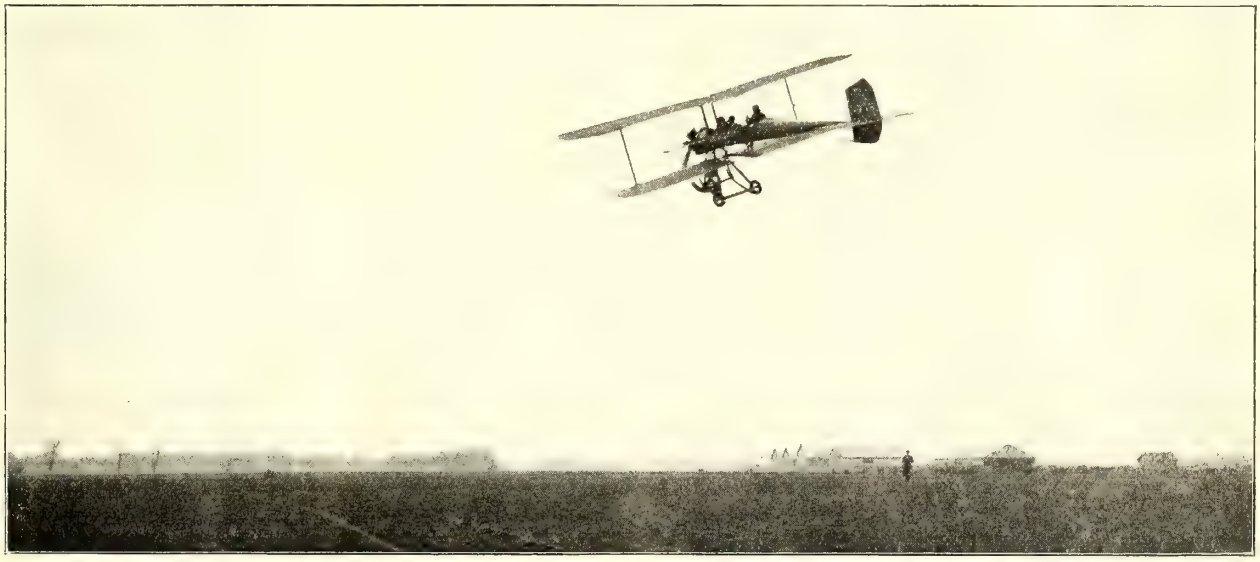
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There is a Commission formed and presided over by the *Inspecteur permanent de l'aéronautique militaire* for the purpose of settling all questions relating to the bestowal of the different forms of the military brevêt for efficiency in flying the different types of aircraft. Appeals may be made from decisions of this Commission to the supreme authorities at the Ministry of War.

This organisation is necessary that all compensation allowances and pensions may be regularised. After this preliminary regulation the rates of special pay are stated and all the different subsidies for wounds received on service. These rates have been previously quoted in The Aeroplane. They compare well with the terms of service obtaining in the British Army and Navy.

The Royal Flying Corps.

From the *London Gazette*. War Office, July 19th :—

Royal Flying Corps (Military Wing).

The date of appointment of the eight flying officers notified in the *Gazette* of July 16th, 1912, is May 13th, 1912, and not as therein stated.

From the *London Gazette*. War Office, July 23rd :—

Regular Forces, Establishments, Royal Flying Corps.

Central Flying School.—Officers appointed Instructors, May 20th, 1912 : Capt. John D. B. Fulton, Royal Artillery ; Capt. Eustace B. Loraine, Grenadier Guards (since deceased).

The first course of instruction in aviation at the Central Flying School, Upavon, Salisbury Plain, begins on August 19th.

The Army Council has sanctioned a reward not exceeding 2s. 6d. payable to recruiters or recruiting agents for each recruit raised and finally approved for the Royal Flying Corps (Military Wing).—W. E. de B W.

French Military Aviation.

Lieutenant-aviator Tretarre, Do-Hû, and Van den Vaero arrived on July 19th at Casablanca from Rabat. In the absence of aerodrome or hangars their Blériot monoplanes have been pegged down on the beach. They leave again in a few days.

The reconnaissances in company of Lieutenant-aviators Bellemois, de Sylvestre, and de la Morlaye on Blériot monoplanes still continue to be made.

Captain-aviator Clavenad, O.C. Moroccan section of the Aviation Corps, has been sent back to his regiment on the North-eastern Frontier as a result of an injudicious article on military aviation signed by him which appeared in the *Matin*. No sympathy can be expressed for him, as this form of insubordination is peculiarly fatal to military discipline and general efficiency.

Captain-aviator Faure and Lieutenant-aviator Jacquet on Blériot monoplanes arrived at Etampes from Tours on July 23rd.—W. E. de B. W.

French Naval Aviation.

Lieutenant de Vaisseau Reynaud has been appointed to the command of the new centre of aviation at Montpellier. The new hangars are not of sufficient height to house the Farman biplanes destined to the service, and they are to be reconstructed.

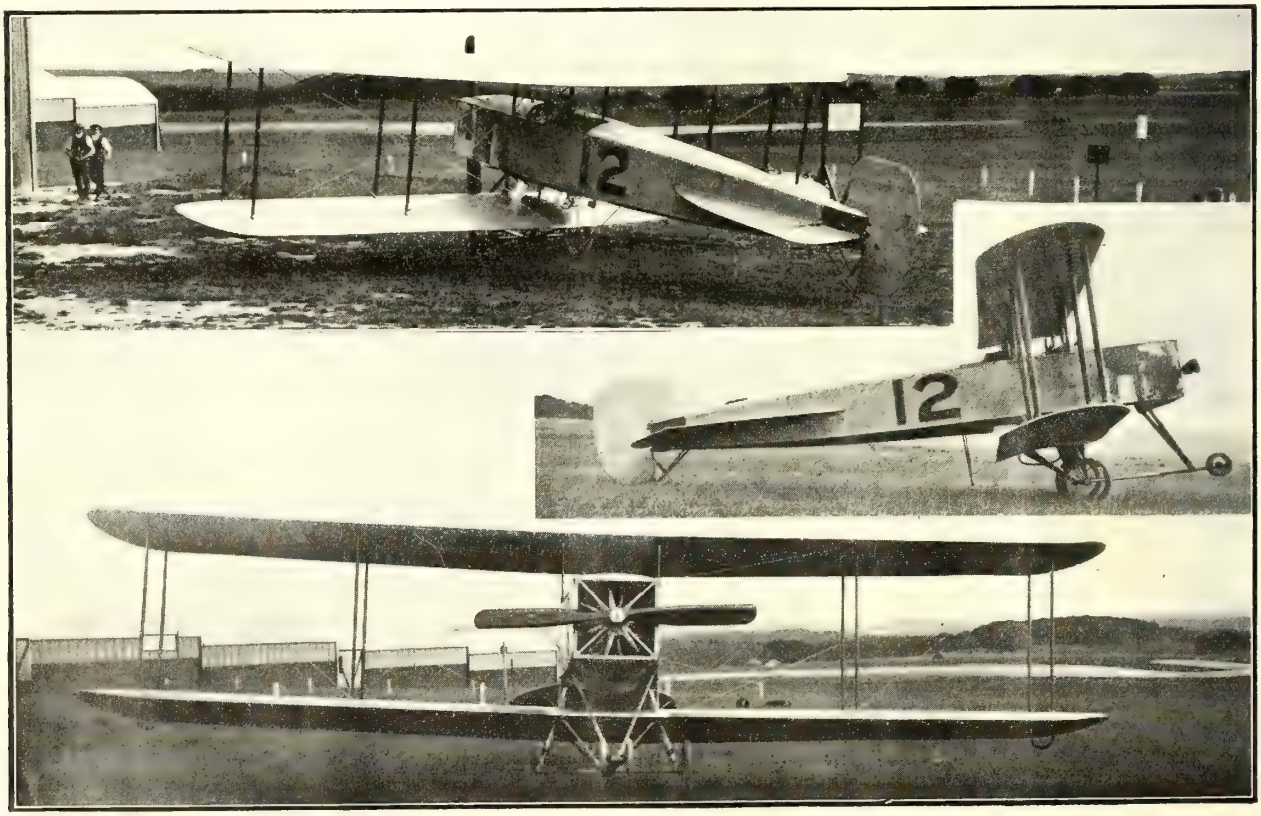
Lieutenant de Vaisseau de l'Escaille carried out the second part of his military brevêt on July 23rd by a flight from Villacoublay to Mourmelon, landing on the outward journey at Saint Hilaire-au-Temple. He was flying a Nieuport monoplane.—W. E. de B. W.

German Military Aviation.

It is stated in the German Press that in Germany there are at least 27 dirigible hangars fit for use. The dirigible *Z.III.* flew from Friedrickshavn to Strasburg between 4.10 a.m. and 9.20 a.m. It has now been accepted by the Ministry of War.

A new aviation station has been formed at Albertstadt, in the Hartz district.

Two German officers, one, the pilot, a lieutenant in the 138th Infantry flying a monoplane, landed in French territory on July 24. They stated that they were following the dirigible *Z.III.*, and lost their way in the fog. These accidents are unfortunate.—W. E. de B. W.



The Bristol biplane designed by Mr. Gordon England over a year ago, and now competing in the Military Trials. On the left may be seen some of the thirty new sheds erected at Lark Hill.

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I am in entire sympathy with such a scheme, and shall be very glad to further it. I warmly congratulate your League on their forward policy, and I wish you every success in your patriotic undertaking. THOS. BOOR CROSBY (*Lord Mayor*).

I sincerely trust Million Shilling Fund will be well supported and prove a great success. ROBERTS.

Hearty good wishes. Conquest of the air will produce a tremendous weapon for that nation which possesses the greatest number of efficient air-craft. CHARLES BERESFORD (*Admiral*).

I believe the time has now arrived when a considerable sum of money can be spent advantageously in the different ways described in the scheme. GENERAL RUCK.

Sincere good wishes in your great undertaking. F. E. SMITH.

I have, of course, every sympathy. CONAN DOYLE.

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Russian Military Aviation.

It was stated in error last week that Lieutenant-aviator Lybovski made his flight from Sevastopol to St. Petersburg on a Farman biplane. Actually his machine was a 50-h.p. Gnôme-engined two-seated Nieuport monoplane. A few days after this flight Lieutenant-aviator Andeadi made the same journey on a similar machine.

Arrangements have been made for the construction of Nieuport aeroplanes in Moscow, as the Russian army will only purchase aeroplanes built in Russia. M. E. de Boutmy is now in Moscow on behalf of the Nieuport firm.—W. E. de B. W.

Italian Military Aviation.

Another dirigible balloon of 6,700 cubic metres capacity, to have two 100-h.p. engines and to carry fifteen people, has been ordered by the Italian Ministry of War.

Ten Italian N.C.O.'s are learning to fly at the Maurice Farman School at Buc. Their names are Pagnano, Torelli, Rosetti, Burzio, Perrucca, Palpacelli, Carminati, de Brambilla, Almerigi, and Brach. All have reached the stage of flying alone.—W. E. de B. W.

Italian Naval Aviation.

The Ministry of Marine have decided that hydro-aeroplane stations shall be formed at Ancona, Tarentum, Bari, Messina, Naples, La Spezzia, and Genoa, in addition to that already in existence at Venice, which has four hydro-aeroplanes in full use. Eight further machines have been ordered from France. —W. E. de B. W.

Chilian Military Aviation.

Captain Avalos, of the Chilian Army, is at Etampes flying a Blériot monoplane (type *XI.*, Gnôme engine).—W. E. de B. W.

Servian Military Aviation.

The Servian officers at Etampes are all ready to take their brevêts on Blériots. Their training has taken less than a month.—W. E. de B. W.

Siamese Military Aviation.

A Siamese officer is, at the expense of his country, learning to fly at the Nieuport School at Mourmelon.—W. E. de B. W.

Norwegian Naval Aviation.

Captain Sem Jacobsen, Norwegian Royal Navy, has taken his aviator's certificate on a Maurice Farman biplane at Buc. Captains Taulow, Sejerted, and Dehli, Norwegian Royal Navy, are also learning to fly at Buc.—W. E. de B. W.

The First Non-Commissioned Pilot of the Naval Wing R.F.C.

The honour of being the first pilot of the Naval Wing of the Royal Flying Corps to come from the lower deck ratings belongs to Private Edmunds, R.M.L.I. Edmunds learned on a Short biplane. At Eastchurch he was officially employed as cook to the officers' mess, and it is reported that the keenest interest was taken in his early attempts to fly because of the visions of vanished dinners conjured up by the possibility of an accident to the only *chef* in the district.

Aviation and the Manœuvres.

The scheme for the Autumn Manœuvres includes the employment of two squadrons of aeroplanes, or, rather, of three "flights," as it is intended that the G.O.C. each army shall have eight aeroplanes at his disposal. The intention is that one force shall have eight monoplanes and the other eight biplanes. The scheme is excellent, but, unfortunately, at the present moment there does not appear to be a sufficiency of military pilots for the work. The only monoplane pilots capable of tackling cross-country flights appear to be Captains Hamilton and Reynolds, and Lieut. Barrington-Kennett, unless the staff of the Central Flying School and the Naval Wing of the R.F.C. at Eastchurch is drawn upon, which hardly seems possible for mere manœuvres. Also it would be difficult to name eight biplane pilots sufficiently experienced for the work.

A New Aerial Gun.

It has long been recognised that some special form of armament would have to be evolved for use on service aeroplanes. Such a gun has recently been produced by Vickers, Ltd., and has been experimented on one of the *B.E.* machines piloted by Mr. de Havilland at Farnborough. Rumour has it that the gun weighs only 15 lbs. complete, less ammunition, and fires 400 shots per minute. The experiments with blank cartridge have been quite satisfactory, and by now it has probably been tried with ball ammunition.

Continental Notes.

The Juvisy meeting of July 21st passed with great success. There was continuous flying from two o'clock onwards. Among those present as spectators were Weymann, Garros, Audemars and Lieutenant-Aviator Faucompré (O.C. Juvisy centre).

M. Chevalier made a fine flight on a Nieuport monoplane at Sainte Affrique (Aveyron) in a very high wind.

M. René Labouchère, now flying a Bréguet, on July 22nd, made a flight over Paris after flying from Villacoublay, to which place he returned later.

The Voisin (type Michel Mahieu) biplane is again making those long cross-country flights which made it famous two years ago. On July 10th Colliex with Rugère as passenger flew from Issy les Moulineaux to Mourmelon, where he arrived at 7.45 p.m. The following day Rugère himself flew the same machine to Bourg-en-Bresse. On July 19th he went to Lyons with Captain Durand as passenger, returning the same day to Bourg. The next morning he returned by the aerial route to Mourmelon, having completed a journey in flight of 1,500 kilometres.

It is intended to hold a hydro-aeroplane meeting at Aix-les-Bains on the Bourget lake from the 14th to the 20th September.

M. Sommer is making extended flights daily over the water at Evian on his new hydro-biplane.

M. Vidart, the idol of women, flew on his Deperdussin on July 24th to Bursinelles, where he dropped a wreath bearing the words, "A bird of France to his friend Kimmerling."

M. "Beaumont" (he still wishes, it seems, to preserve his transparent incognito), who was recently known as a Blériot pilot of repute, has left the service of his country to become managing-director of the firm of Donnet-Lévêque, builders of aero-hydroplanes. He intends to fly these machines, and, in fact, is reported to be on his way to England by the air at the present moment. He left Paris last week, but has not yet arrived.

M. Alfred de Pischoff, who has for some time been stationed at Juvisy, where he constructs and flies his aero-automobile, is leaving for Russia in response to flattering offers from a Russian firm. He is to construct two new types of monoplane.

M. Jules Védrines, the aviator, has been flying a Deperdussin monoplane at Pampeluna, in Spain. His achievements have not dulled in their brilliancy.

M. Demazel on a Demazel biplane (Anzani motor 80 h.p.) has flown (July 24th) from Lectoure to Mauvezin, thirty-five kilometres, in fourteen minutes.

M. le Baron Pasquier, who flew on a Blériot monoplane (type *XI.*) from Etampes to Cabourg, via Trouville, on July 22nd, returned to Etampes on July 24th.

M. Hélén intends, on a Nieuport monoplane, to compete for the Coupe Michelin on August 5th.

The Bréguets for the Competitions.

As the Trials grow nearer, naturally makers are forced to make alterations in their arrangements. M. Garnier, managing director of Bréguet Aeroplanes, Ltd., finds that time does not permit of the completion of the British two-seater; consequently, of the two Bréguets entered one will be British and the other French. Work on the British machine was started at the firm's works at Hythe Road, Willesden, on July 5th, and the entire machine, with the exception of the engine, has been constructed exclusively of British materials. In point of time this probably constitutes a record in aeroplane building.

The second machine is of the same size, but of not quite so recent a type as the British one. The peculiarity of this machine is that the 100-h.p. Salmson engine is placed horizontally, and drives the propeller through bevel gearing, this arrangement being adopted to minimise head resistance. A gearing is fitted which permits the pilot to start his engine (which is fitted with a silencer) from the driving seat, and the three seats are arranged in tandem. The machine is fitted with a brake, so that it can be pulled up sharply after landing. A new feature about these machines is that the warp is now fitted with auxiliary foot control as well as lever control. The propeller is geared down from the engine 1 to 1.8. The British machine is to be flown by M. Moineau, and the French machine by Mr. Moorhouse.

The Henry Farman Double-Purpose Biplane.

In answer to sundry correspondence, it may be well to point out that the big Henry Farman biplane described and illustrated last week is that designed by Mr. Henry Farman

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for use as a hydro-aeroplane, and differs very materially from the Henry Farman military biplane, which is quite a small, fast machine. Nevertheless, there are many good judges who believe in large surfaces, and who do not want a particularly fast machine, and to them the big machine with wheels instead of floats undoubtedly appeals, for it is naturally easier and safer to land on bad ground than is a fast machine of the same type with small surfaces. The big machine is not intended for military use, but may be best described as an all-round double-purpose touring machine. It should be noted that Mr. Grahame-White's machine, which was that illustrated, and the similar hydro-aeroplanes used by MM. Fischer and Hubert for the Frank Hucks Company along the south-west coast, were all supplied by Mr. Holt Thomas, of the Aircraft Manufacturing Co., Ltd., and that his firm will shortly be building machines of the same type in their works at Hendon.

The Aeronautical Society.

Wilbur Wright Memorial Fund.—The following subscriptions have been received :—Amount previously acknowledged, £461 12s. 6d. ; R, Runge, Esq., £10 ; Harry F. Jackson, Esq., 3s. ; J. G. Lorrain, Esq., £1 1s. ; Capt. W. J. P. Rodd, 10s. ; Harris Booth, Esq., £1 1s. Total, £474 7s. 6d.

Mr. Slack's Progress.

Mr. Seymour Norton, of the International Correspondence Schools, sends the following particulars of Mr. Slack's educational tour :—"With respect to Slack's flight from Carlisle on July 19th, he states that he ascended to over four thousand feet to try and get out of the troublesome wind, but could not make any headway at all, and so descended in a field at Wamphray, near the main road and the Caledonian Railway, so that he might be easily picked up by the following cars.

"I have at length been able to ascertain, from numerous correspondents, the route that he followed on Sunday, the 21st. He followed the Caledonian main line from Beattock, clearing summits 1,800 feet high, and making a splendid trip over very mountainous country against a full gale. He apparently mistook Symington for Carstairs, and consequently followed the branch railway to Peebles instead of the direct Edinburgh line, thus keeping the Pentland Hills on his left. From Peebles he set his course direct for Edinburgh once more, but the gale drove him among the Moorfoot Hills, causing him to lose his reckoning again. Finally, picking up the Waverley route, he followed it towards the north, but decided to descend near Gorebridge, in order to replenish his nearly exhausted petrol tanks and to ascertain his whereabouts. A bad light and the presence of a rapidly-gathered crowd prevented the resumption of the flight to Edinburgh the same evening.

"At Edinburgh, the I.C.S. aviation party received an enthusiastic welcome. On Wednesday afternoon a reception was held in the temporary hangar on Buchan's Farm, Corstorphine, when Mr. Slack gave a brief lecture on his tour and on the objects of the I.C.S. to an appreciative audience. On behalf of several Edinburgh enthusiasts, Mr. McNally (Director of Technical Instruction for the Edinburgh School Board) presented Slack with a gold medal, accompanying the presentation with a felicitous speech. At the same time silver cups were presented to Victor Lapeyre, who is acting as Slack's mechanic on this tour, and who filled the same capacity for "Beaumont" on the "Circuit of Britain"; and to J. W. Perry, the driver-mechanic who looks after the big Austin car. As a token of their appreciation of his services to aviation, and as a mark of their own personal friendship, the I.C.S. aviation party then made a presentation to Mr. W. H. Ewen, the Scottish aviator, of a gold horse-shoe pin, set with pearls. The little ceremony was marked by plenty of enthusiasm and good feeling.

"Continued thick mists prevented the resumption of the flight until Friday afternoon. At 4.37 p.m. Slack got away from Corstorphine in fine style, flying to the south of Edinburgh and following the East Coast line from Portobello onward. He passed over Dunbar, Berwick, Alnwick, and Morpeth, finally alighting in splendid style on Gosforth Park Racecourse at 6.31 p.m. He must have covered 125 miles in 114 minutes, practically 66 miles an hour. The reception accorded Slack at Newcastle was quite up to the standard of Carlisle and Edinburgh.

"I regret to have to criticise the behaviour of the Saturday afternoon crowd when Slack went up to Gosforth Park next day to see if it were possible to proceed on his way south. The weather was exceedingly misty, and a nasty, gusty wind was blowing, but the crowd clamoured for a flight and would not be persuaded otherwise. As the police reported that they could not hold back the people, who were threatening all sorts of trouble to our party, Slack made a short exhibition flight, circling the park a time or two. His machine was badly tossed about in the air, and the mist condensed on his goggles so that he could hardly see how to land again. This was too great a risk to be forced to take."



Mr. Harry Busteed flying the new type Bristol with long body and fixed tail-plane over Salisbury Plain.

Good Work at Brooklands.

The amount of solid work which is being done at the Bristol Brooklands School lately is really quite astonishing, and reflects the greatest credit on the two instructors, Messrs. Hotchkiss and Merriam, on whom the whole of the work devolves now that the pupils from the Salisbury School have been sent to Brooklands during the Military Competition. During the seven days ending on the 25th no less than 300 flights were made by the instructors and pupils, and, in the course of these, seven certificates were taken, six of these being pupils trained entirely at Brooklands, and one that of a pupil whose tuition began on Salisbury Plain. The distance covered in these flights was nearly 2,000 miles.

Captain Sanders at Work Again.

"Captain" Sanders, whose biplane caused considerable interest at the last Olympia Show, has, it appears, now located himself in Northumberland, for an Alnwick paper gives an account of some very respectable flying by him at Druridge Bay, near Broomhill and East Chevington. One Sunday recently he made a series of flights reaching in one a height estimated at 500 ft., and twice flying half-a-mile out to sea in the course of flights up and down the sands for several miles at a time. It will be remembered that Lieut. Parke, R.N., spent some time at Beccles assisting in experiments on this machine, and it seems highly probable that with the experience gained then and since, "Captain" Sanders should be able to produce quite a satisfactory machine.

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The Aerial League's National Subscription.

It has now been definitely decided that a national subscription is to be organised by the Aerial League throughout the United Kingdom. A number of notable persons, whose *bona fides* cannot for a moment be doubted, have signified their thorough approval of the idea, and the fact that the fund will be in the charge of the Official Trustee is sufficient guarantee that it will be properly administered.

Those who know General Arbuthnot, the chairman, and Colonel Massy, the vice-chairman, of the League, must realise the absolute honesty of purpose which actuates them in organising the fund, and the only reason that can prevent anyone from subscribing to it is a doubt as to the purposes to which the money raised may be put.

On this score it appears that there need be no anxiety, for it is the intention of the Council of the League to invite the Aeronautical Society and the Royal Aero Club to appoint a technical committee who will advise the Council of the League as to the spending of the money. The writer has talked the matter over at considerable length with Colonel Massy, and gathers that there is on this occasion no question of buying aeroplanes haphazard and presenting them to the Army, or of endowing a technical college for the education of would-be aeronautical engineers. Subject to the advice of the proposed technical committee, it appears that it is the intention of the Council to devote the money in the best possible way to fostering the growth of the British aeroplane industry, on the grounds that the best guarantee of an adequate aerial force in the future is a sound industry in this country, which would be in a position, when called upon, to equip the Royal Flying Corps with machines of the right kind at short notice.

This may be done by organising, some time in the future, a competition for all-British military aeroplanes built exclusively by British firms, with really handsome prizes for all competitors who pass a certain standard of efficiency, and it may be done at the same time by equipping public aerodromes in various parts of the country, which will help to raise local enthusiasm and keep it alive afterwards, and provide landing places for aviators who are flying about the country either for service purposes or for trade purposes. In fact, the whole scheme is arranged so that, acting on the advice of a thoroughly adequate technical committee, the £50,000 which it is proposed to raise may be made to produce really excellent results. There should, as a matter of fact, be little or no difficulty in raising the money, and the replies which have been received from the authorities in various towns in the provinces to the letters asking them to co-operate have been almost invariably most encouraging.

The writer would, therefore, appeal to all readers of The Aeroplane to put themselves in touch with the Secretary of the Aerial League at Coventry House, Coventry Street, W., and ask that he will give them the address of the nearest collecting centre which is being organised, so that when the work of collecting really starts readers of the paper may do their part in the collecting.

The Sopwith-Saunders Bat-Boats.

Just by way of showing that all advance in aviation does not come from abroad, it may be well to point out that Mr. T. O. M. Sopwith has been busy for some time evolving an aero-hydroplane on lines which are quite distinct from those of the ordinary aeroplanes with floats.

The machine in question is in reality a hydroplane with wings, the boat being built by S. E. Saunders, Ltd., of Cowes, who have probably had greater experience of hydroplanes—their evolution and construction—than anyone in this country. The wings have been built in Mr. Sopwith's sheds at Brooklands by his chief engineer, Mr. Sigrist. Needless to say, both sections are turned out in the best possible fashion. The hydroplane is covered with a sheeting made of two layers of spruce with a layer of water-tight fabric between, this being sewn to the frames with copper wire by the Saunders patent sewn system, as used by the firm in all their hydroplane work.

The writer had the privilege of inspecting the machine last week, when it was approaching completion, and can vouch for the excellence of the design and workmanship throughout. The lower plane is bolted on top of the gunnel of the boat, and from the four points where the main cross-members meet the boat stout upright struts run to the upper plane. To the forward pair the Gnôme engine is fitted, with the tanks behind it on a platform below the plane and above the passenger.

The pilot sits behind the planes, with the passenger in front of him, both of them being inside the boat itself. The boat tapers aft, till the deck reaches a point, and the bottom is only a few inches wide, and terminates in a lifting tail of the Blériot type, which has between the elevator flaps a rudder working partly in the water when floating. The span of the upper main plane is about 30 ft., and that of the lower some 8 ft. less.

The hull of the hydroplane only weighs about 130 lbs., which compares more than favourably with any possible weight for an ordinary fuselage and chassis with floats.

The whole machine is undoubtedly a step in the right direction, and it is hoped that it will be the forerunner of a regular type of flying boat. With due acknowledgments to Mr. Kipling's wonderful story "With the Night Mail," Messrs. Sopwith and Saunders have agreed to call their machines "bat-boats," an excellent name, which will be handy and easy to remember. The right men are behind the new type, the type itself is right, so let us hope it will have the success it deserves.

Hendon Attractions for the August Holidays.

For the third London aviation meeting at the London Aerodrome, which will extend over the August holidays, a specially attractive programme has been arranged.

There will be six valuable trophies offered, including the "London Aerodrome" trophy, the "Grahame-White" trophy, and the "Hendon Cup." The prizes amount to £350.

On Saturday, August 3rd, the programme will open at 3.30 p.m. with a relay race round the pylons. At 4.45 p.m. a speed handicap will be flown in heats of four laps (six miles) and a final of six laps (nine miles). From 5.45 p.m. till dusk there will be exhibition and passenger flights.

On Bank Holiday (Monday, August 5th) the programme is an extensive one, and proceedings will commence at 1.30 p.m. with exhibition and passenger flights. At 2.30 p.m. the preliminary heats of the Grand Speed Handicap for the "London Aerodrome" trophy and 135 sovs. will be started. The heats will be for four laps (six miles), but the final in this instance will be eight laps, or twelve miles.

Four o'clock will see the start of the cross-country handicap for the "Grahame-White" trophy and 50 sovs. The course—a triangular one of twelve miles—will be flown over twice, thus making the total distance 24 miles. After this the final heat of the speed handicap will be decided.

From 5.30 to 6 p.m. there will be an Altitude Contest.

It is expected that many pilots, both British and Continental, taking part in the Military Aeroplane Competition will enter for these competitions, as the War Office has issued notice that they will not require the aviators to make tests on Sunday or Bank Holiday, and among these pilots are some of the finest flyers in the world.



Captain Hamilton of the Lark Hill Squadron R.F.C. starting out on his Deperdussin over the ground on which the Military Competition is being held. Note how the wheels are up to the hubs in grass.

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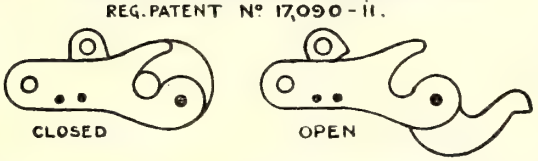
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The New Military Bristols.

The accompanying photographs and sketches will probably be almost self-explanatory so far as the Bristol machines entered for the War Office Competition are concerned.

As was announced last week, four Bristols are entered, two monoplanes, which will be flown by Messrs. Busteed and Valentine; and two tractor biplanes, to be flown by Messrs. Gordon England and Pixton. Both the former have 80-h.p. Gnôme engines. Of the latter one has a 100-h.p. Gnôme driving its tractor direct, and the other a 70-h.p. Mercédés-Daimler driving a geared-down tractor through a chain.

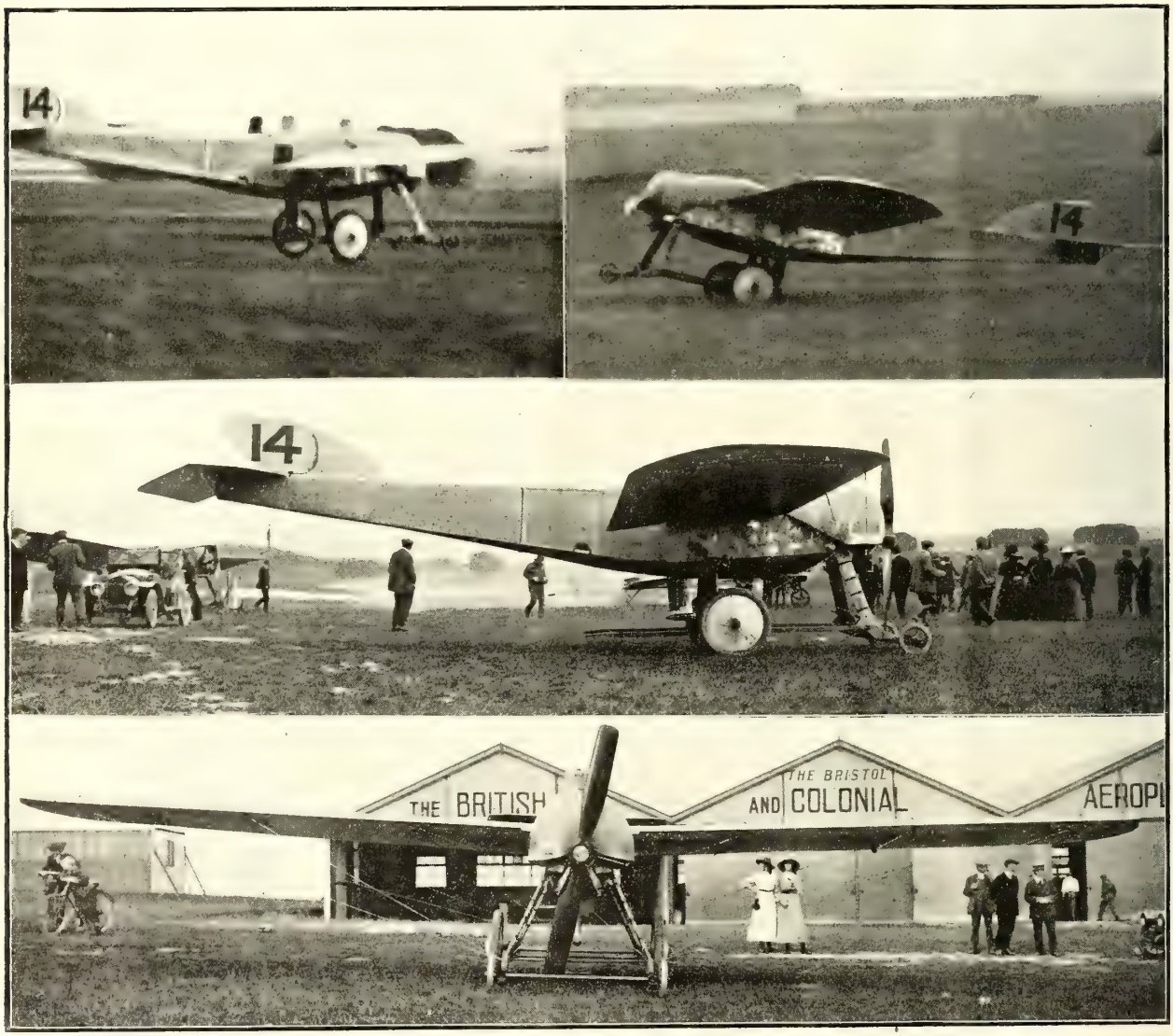
The writer was able, by the courtesy of the British and Colonial Aeroplane Company, Ltd., to inspect three of these machines on Salisbury Plain on Wednesday of last week, but the last-mentioned had not then arrived from the works. On the whole, the general impression given by the new monoplanes designed, one understands, by M. Coanda, is favourable. They look fast, and they certainly fly fast, judging from Mr. Busteed's machine, in which the motor was not fully tuned up.

It appears that each new type of engine has to be specially learnt, for the 70-h.p. Gnôme, which seemed to be a failure at first, is now running pretty satisfactorily everywhere, and it is probable that the 80 h.p.'s will also behave properly when the various mechanics have got used to their tricks. Meantime all is not quite peace with them, so one had not quite a fair opportunity of seeing how fast Mr. Busteed's machine really was, nor how it could lift.

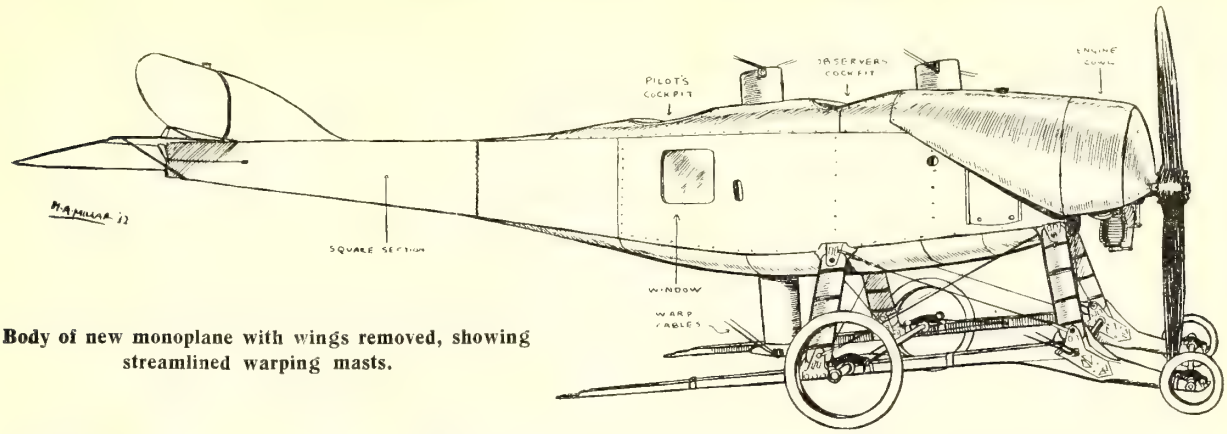
Mr. Valentine's machine is practically the same, except that it has the new Gnôme carburetter instead of the old simple jet and choke-tube, and as this is placed about 4 in. to 6 in. from the observer's rudder-bar inside the body, it might be awkward in case of a blow-back through a broken valve-spring setting light to the carburetter.

Of course, the machine is beautifully made, and is full of interesting details. The methods of jointing up the various struts and skids in the chassis are not only ingenious, but strong and neat. The cross tubes and wheel axles in the chassis are neatly streamlined with pieces of light wood clipped on to their lee sides. The quick-release catch for the cables is also worthy of attention. It is similar in principle to that used on the Coventry Ordnance machine, the little cross-piece which prevents the pin from coming out of the tube being turned into a vertical position when the spring is pulled up, so that it can pass down inside the tube.

The wings are cut away close to the spars, back and front, near the fuselage, to give pilot and observer a better view, much in the way recently described in the Deperdussin machines. The four simple chassis struts are made very deep fore and aft, and narrow thwartwise, so as to approximate to a good streamline, tapering almost to a knife-edge aft. They



The Coanda-Bristol Monoplane which is entered for the Military Competition. Above it is seen starting and landing with Mr. Harry Busteed at the wheel.



Body of new monoplane with wings removed, showing streamlined warping masts.

are hollowed in section, the two halves being sewed together with cord, as in the Maurice Farman and Caudron struts.

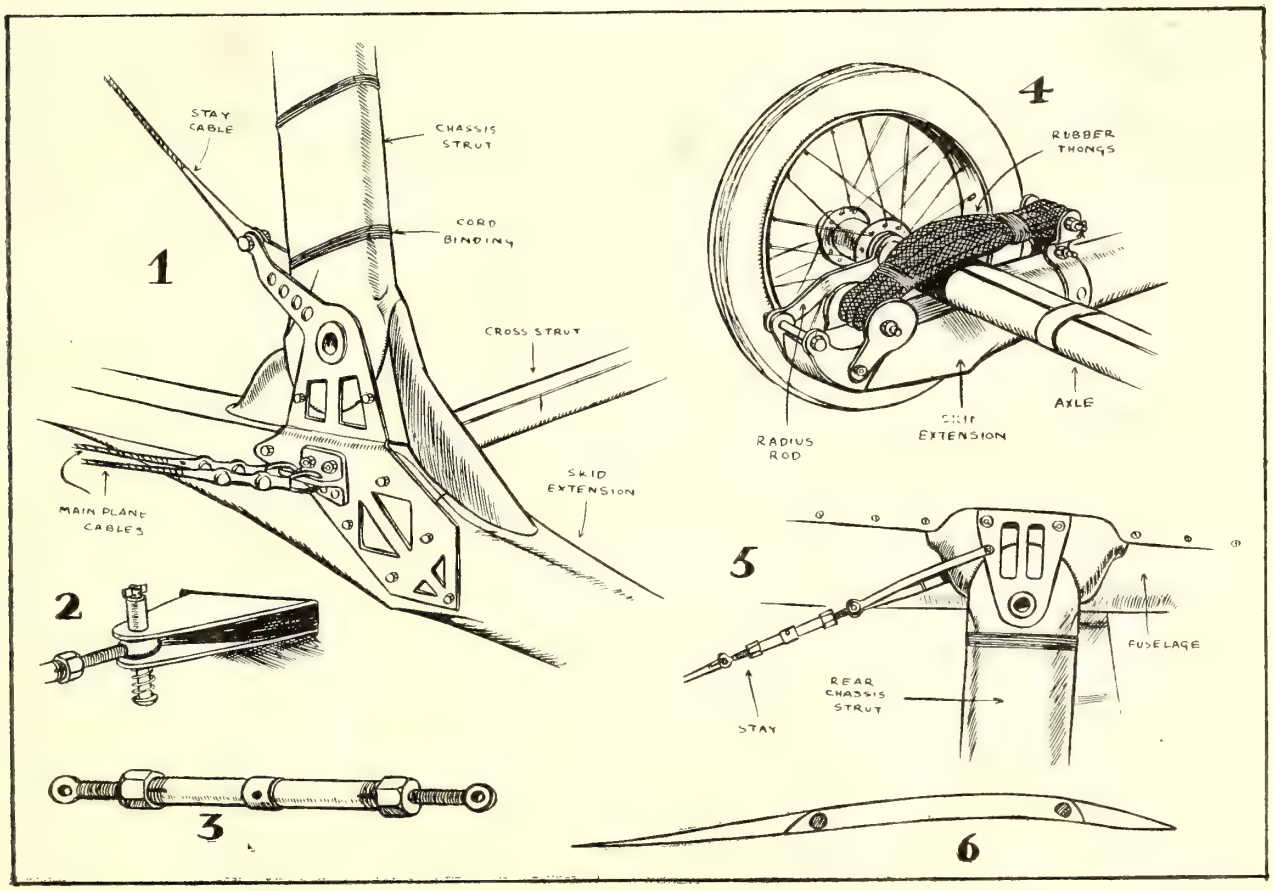
As far as the back of the pilot's seat the body is cased with aluminium sheet, but aft of that it tapers into a square fuselage covered with fabric, on the end of which is a flat tail-plane followed by a long capable-looking elevator flap, which is not "balanced" in any way, but merely hinged. The rudder is perched on top of the tail, and is "balanced" by having a fair amount of its surface in front of the stout steel rudder post. In front of the rudder is a vertical fin, exactly like the dorsal fin of a shark. There are various good reasons for having it there, such as a desire to give more vertical area aft of the centre of gravity, the intention to increase directional stability and to decrease the fierceness of the balanced rudder, but, peculiarly enough, it seems necessary to the look of the machine, for it adds to the "wicked" appearance given to the forward part by the grey-painted rounded cowl over the engine and the stubby upper masts, only it would have looked still better and might have given better streamlines if the oval section of the forward part had been carried right aft.

However, the machine is a good specimen of sound English work, and one hopes it will distinguish itself in the trials.

Incidentally, it is worthy of note that all the Bristol two-seated monoplanes at present in the sheds at Lark Hill have now been fitted with semi-circular fixed tails, with large flat elevator flaps, instead of the balanced elevators without fixed planes, formerly fitted, which gave rise to so much controversy on the question of longitudinal stability. Some of them also have the body considerably lengthened, and the pilots seem, on the whole, to prefer these to the older type.

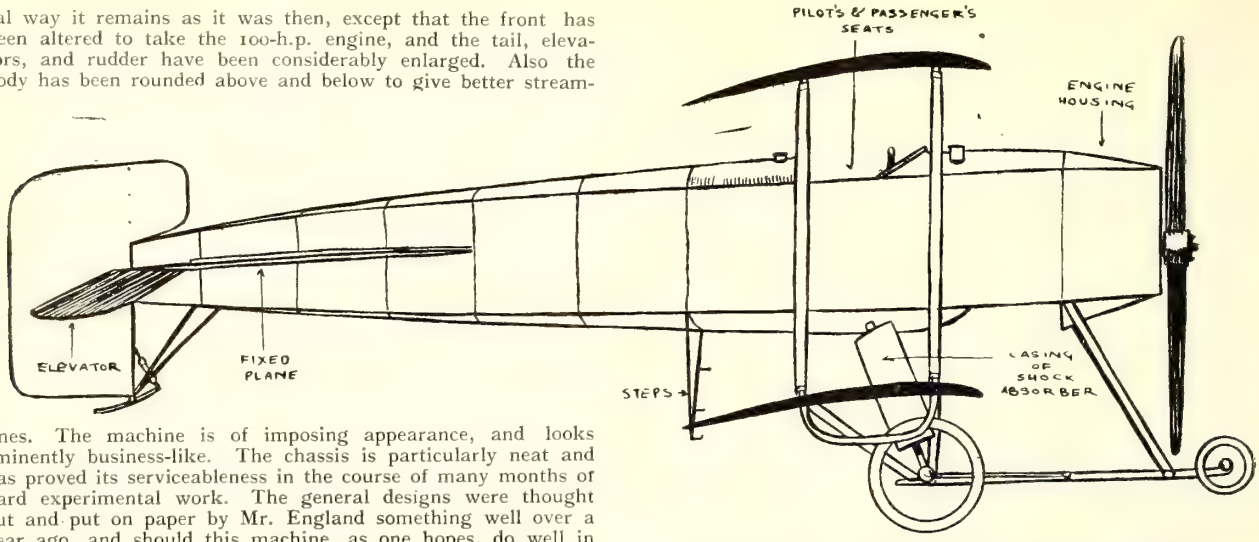
The Biplanes.

The Gordon-England biplane was described and illustrated in detail in The Aeroplane not very long ago, and in a gene-



(1) Main chassis joints. (2) Quick release cable joints. (3) Positive lock turn-buckles. (4) Skid-tip wheel fittings. (5) Shoulder joint of chassis struts. (6) Wing section, showing amount cut out next body.

ral way it remains as it was then, except that the front has been altered to take the 100-h.p. engine, and the tail, elevators, and rudder have been considerably enlarged. Also the body has been rounded above and below to give better stream-



Diagrammatic sketch of the Gordon-England biplane, as altered for 100-h.p. engine.

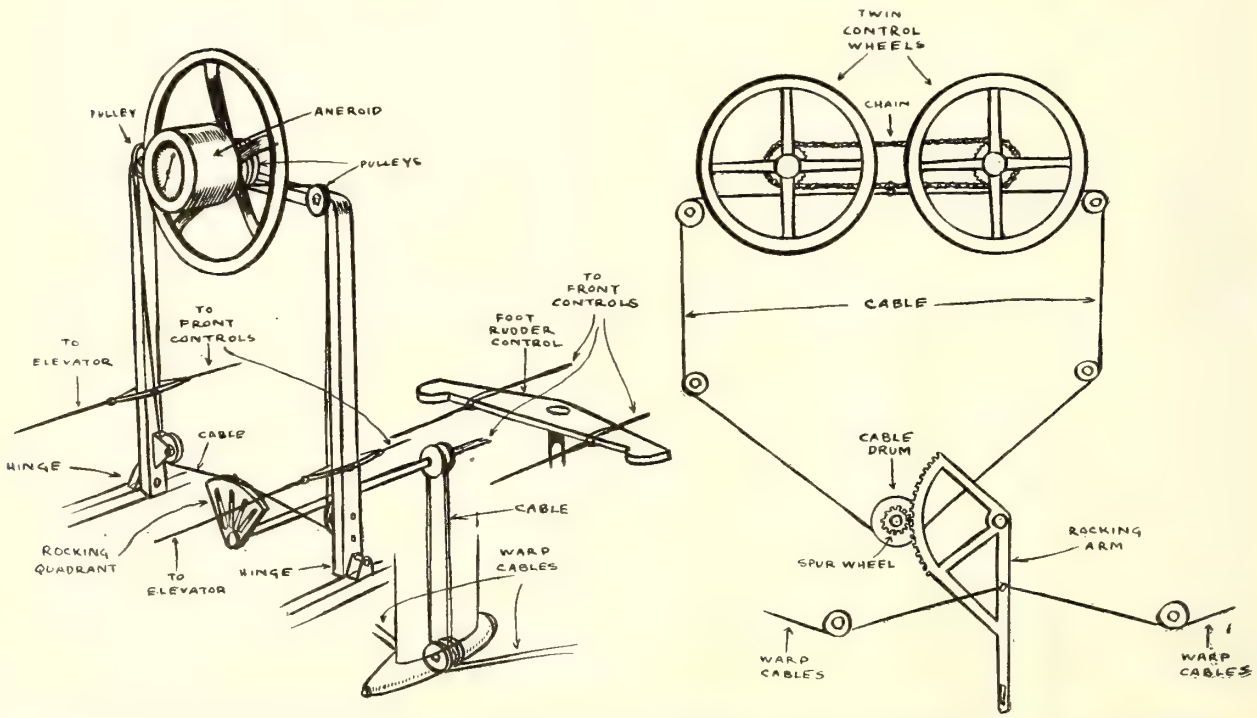
lines. The machine is of imposing appearance, and looks eminently business-like. The chassis is particularly neat and has proved its serviceableness in the course of many months of hard experimental work. The general designs were thought out and put on paper by Mr. England something well over a year ago, and should this machine, as one hopes, do well in the competition, one may expect its successors to show still further advances in design.

Aerohydroplanes and Hydroaeroplanes.

It is noticeable that the *Daily Mail*, which coined the word "water-plane" to describe a hydroaeroplane, has adopted "aerohydroplane" for the Donnet-Lévêque type of water-flier. Strangely enough, the word really does describe what it is intended to describe, though "waterplane" and "airman" most distinctly do not. The difference is this: the hydro-aeroplane is an aeroplane intended for flying off and on to water, whereas the aero-hydroplane is a hydroplane intended to be used in the air. Most hydro-aeroplanes are simply aeroplanes with floats, and are pulled off the water by the planes when they have reached their lowest flying speed. The aero-hydroplane is a hydroplane with wings which forces itself out of the water when it reaches a certain speed and skims along the surface, as a hydroplane boat does, till it reaches its flying speed, when the wings take charge and lift it off the water, not out of it.

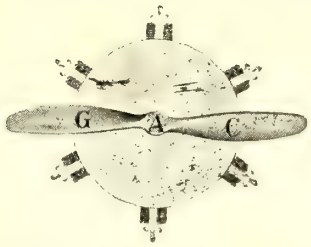
The difference in efficiency is shown most markedly in starting with the wind behind; for a hydro-aeroplane will take a long time to get into the air owing to the drag of the floats in the water preventing it from reaching its flying speed, whereas an aero-hydroplane will be forced onto the surface by a following wind, and may actually get into the air more quickly than if starting head to wind.

Of course, the hydro-aeroplane may have a comprehensive boat body which does not hydroplane at all, and an aero-hydroplane may have comparatively small floats—one or more of them—which hydroplane exceeding well, so it is impossible to tell whether a machine belongs to one type or the other till one has seen it in operation, but though representatives of either type may be similar in appearance, they differ exceedingly in operation. It is, however, fairly obvious that the true aero-hydroplane must in the end displace the other type for regular use off water.



Diagrams of the Bristol Control. On left.—Control gear of Monoplane. On right.—Side-by-side control of Biplane.

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The Week's Work.

MONDAY, July 22nd.

Brooklands.—At Sopwith School, Mr. Hedley and Major Trenchard making circuits on Farman early. Proceedings terminated by excellent example of the *vol pancake* on latter's part. Damage fortunately unimportant. Evening same two pupils and Mr. Copland Perry again out.

At Avro School, Mr. Raynham took *No. 3* War Office Avro to Farnborough, starting at 5.30 a.m., arriving safely after an excellent journey. Machine put through tests and accepted within 5 hrs. of leaving Brooklands. Mr. Simms also out on Green engined machine in good style. At 3 p.m. Mr. Simms again out, and made second flight for brevêt successfully. In evening, Mr. Simms again out for twenty minutes at 300-400 ft.

At Vickers School, evening, Lt. Beatty making circuits for 10 min. on *No. 5*. Messrs. Knight and Hunter straights on same.

At Martin Handasyde's, Mr. Bell out on both Chenu and Antoinette-engined machines for several circuits.

At Bristol School, Mr. Hotchkiss with Lieut. Waldron, who also flew three circuits alone. Mr. Merriam with Lieut. Duberley and later with Lieut. Playfair and Capt. Brabazon. Mr. Hotchkiss with Lieut. Wanklyn and Mr. Cheesman. Major Higgins alone. Lieut. Atkinson straights alone. Mr. Merriam behind Mr. Summerfield. Mr. Hotchkiss with Lieut. Wanklyn and Lieut. Playfair. Mr. Merriam with Lieut. Duberley. Lieut. Waldron alone two figures of 8. Lieut. Arthur on single-seater for three circuits. Mr. Merriam with Capt. Brabazon, and behind Mr. Cheesman. Major Higgins alone, two figures of 8. Lieut. Atkinson straights. Mr. Hotchkiss behind Mr. Cheesman, latter later taxying alone for 10 mins. Mr. Summerfield alone for four straights. Mr. Merriam with Lieut. Duberley and Lieut. Playfair. Mr. Hotchkiss with Capt. Brabazon and Lieut. Wanklyn flying with latter over Weybridge at 600 ft., landing with spiral *vol plané*. Lieut. Atkinson, Mr. Pickles, and Mr. Cheesman all out. Mr. Hotchkiss then flew single-seater to river and washed off stains of Mr. Campbell's landing in sewage farm.

At 3 p.m., Mr. Hotchkiss up with Capt. Nicholas in pilot's seat. Then with Mr. Stone. Mr. Hotchkiss with Capt. Boger. Mr. Merriam with Mr. Cheesman for landing tuition, then behind Mr. Summerfield and with Capt. Brabazon. Mr. Hotchkiss with Major Ashmore, Lieut. Playfair, and Lieut. Duberley. Mr. Merriam with Major Ashmore and Lieut. Atkinson. Major Higgins and Lieut. Waldron flying circuits well. Mr. Hotchkiss behind Mr. Cheesman. Lieut. Arthur with Lieut. Duberley then alone. Capt. Macdonell alone. Mr. Merriam with Lieut. Hope and Capt. Boger. Mr. Hotchkiss with Capt. Brabazon and Lieut. Playfair. Capt. Macdonell, Major Higgins, Lieut. Waldron and Lieut. Atkinson all flying. Mr. Summerfield short straights alone. Mr. Cheesman taxying and swept chassis away at far end of ground. Mr. Hotchkiss flew to accident with Mechanic Willis, Mr. Cheesman, complete chassis, and tools on board. Got new chassis under machine and then pushed her back to hangars.

Brighton.—Mr. Grahame-White arrived on Henry Farman from Hendon.

Bournemouth.—Various passenger flights given by M. Fischer before starting for Weymouth on Farman biplane.

Eastchurch.—Early morning, Capt. Gordon, R.M.L.I., flew Henry Farman with passenger to Chatham, but was unable to land on account of fog, so returned to Eastchurch. In evening Private Edmunds took brevêt on school machine, being the first pilot in the Navy below commissioned rank to obtain a certificate. Commander Samson, R.N., out on Short monoplane accompanied by Messrs. Ogilvie and Fowler on Wright biplane, also Lieut. Briggs, R.N., on school machine. 70-h.p. Gnôme again gave trouble to Captain Gordon and forced landing at Brambledown, two miles from aerodrome.

Edinburgh.—Mr. Slack, the I.C.S. pilot, arrived on Blériot from Gorebridge and was enthusiastically received at Corstorphine.

Farnborough (R.F.C.).—Early, Capt. Reynolds on Henry Farman 15 min. Major Moss several long flights on same. Airship *Gamma* out observing troops.

Mr. de Havilland on *B.E.4.*, taking passengers. New Avro flew over from Brooklands and passed official test. In evening Capt. Reynolds on Henry Farman, taking passengers, and one flight taking two passengers easily.

Hendon.—At Grahame-White School, 5.30 a.m., Mr. Cholmondeley doing straights on No. 7, followed by Capt. Salmond, Lieut. Rathborne, and Mr. Hoelscher. Then Lieut. Allen up with Mr. Blackburn behind him, while Mr. Lan-Davis experimented on 25-h.p. Anzani-Blériot. Then Lieut. Stopford doing straights with Mr. Blackburn, who also took Lieut. Small for passenger flight. After this, Capt. Halahan rolling. Then whole performance repeated, and after that Mr. Cholmondeley, Capt. Salmond, Lieuts. Rathborne and Allen, and Mr. Hoelscher and Lieut. Stopford each out for third lesson. In evening work started at 6.16, when Capt. Halahan out rolling on No. 7, followed by Lieut. Rathborne doing straights alone, and Lieuts. Stopford and Allen straights with Mr. Blackburn. Then Mr. Cholmondeley up for straights, and Capt. Salmond for circuits, while Mr. Lan-Davis out rolling on Blériot, Mr. Hoelscher making first efforts alone on No. 7. After this, Lieuts. Rathborne and Stopford and Mr. Cholmondeley, and Lieut. Allen having a second lesson, while M. Desoutter took out the "Gordon-Bennett" Blériot for an hour's practice, making some very pretty flights.

At Bleriot School, 5.30 a.m., Mr. Metford tried out school machine just adjusted, and after flying one circuit at about 60 ft., handed over to M. Teulade, who did a circuit and damaged chassis in landing. Mr. Sacchi meanwhile good straight flight on *L.B.2.*

At Deperdussin School, Mr. R. W. Gill did neat circuits; then Capt. Dawes and Messrs. Brock and Harrison doing straights on brevêt machine. Capt. "X" rolling on taxi. In evening Mr. Gill flying on brevêt machine.

The Plain (Bristol School).—Mr. Gordon England with passenger. Mr. Busteed testing school two-seater monoplane. Mr. Harrison afterwards out first time alone in this type, making very good flight with good landing. Prince Cantacuzene also made good flight on this machine. In evening Mr. Busteed, with Mr. Harrison as passenger, over to new Army School and back. Mr. Valentine on similar machine made same flight

The Plain (R.F.C.).—Lieut. Fox in morning on 70-h.p. Blériot, two good flights. Capt. Hamilton on Deperdussin made eight long flights, taking up two passengers on these trips. Major Brooke-Popham on Avro making five flights, taking up Capt. Conner on two flights, Lieut. Fox on one, and Lieut. Lawrence on another.

R.F.C. Central Flying School.—Capt. Fulton one flight on *Short 44* and one on *Bristol F.8.* Lt. Longmore, R.N., two flights on *Short 44*, taking up Capt. Cordner. Capt. Cordner once on *Bristol F.8.* In evening Lt. Longmore, R.N., two flights on *Short 44*, taking Staff-Sgt. Thomas and Sgt. Vagg for tuition. Capt. Fulton on Avro twice. This evening a busy one, for Messrs. Busteed and Harrison on Bristol, which Mr. Busteed is piloting in Army Trials, and Mr. Valentine on Bristol two-seater and Major Brooke-Popham on Avro, with Capt. Conner as passenger, all visited school from Lark Hill.

Weymouth.—M. Fischer, with M. Hubert as passenger, arrived on Henry Farman hydro-biplane from Bournemouth. Suffered much from wind and rain. Left at 4.30 p.m., and did something like 80 m.p.h. with east wind.

TUESDAY, July 23rd.

Brooklands.—At Sopwith School, early, Major Trenchard and Mr. Hedley at work on Farman. Evening, Mr. Copland Perry on Burgess-Wright alone, later with Mr. Hedley as passenger.

At Martin Handasyde's, Mr. Bell testing Chenu-engined machine for Military Trials. Engine not yet tuned up to complete satisfaction of Messrs. Martin and Handasyde, but machine making excellent show in Mr. Bell's capable hands.

At Avro School, evening, Mr. Simms succeeded in coaxing school machine to 4,500 ft. and keeping there for 20 min.

Mr. H. J. D. Astley on Grahame-White-G. B. Blériot called for afternoon tea, arriving at 4.50.

Mr. Eric Pashley out on ancient Sommer, which is flying surprisingly well.

At Bristol School, Mr. Merriam with Lieut. Duberley. Mr. Hotchkiss with Capt. Brabazon, Lieut. Playfair and Lieut. Hope. Lieut. Waldron alone for figures of 8. Mr. Merriam with Mr. Summerfield. Capt. Boger and Lieut. Duberley. Lieut. Waldron away for brevêt, flying well. Major Higgins, Capt. Macdonell and Lieut. Atkinson flying. Mr. Hotchkiss with Lieut. Hope and Capt. Boger. Mr. Merriam with Capt. Brabazon and Lieut. Playfair. Mr. Summerfield and Major Higgins flying. Lieut. Arthur up twice, once with Lieut. Hope. Mr. Pickles and Mr. Hotchkiss flying alone. In evening, Mr. Hotchkiss on Anzani monoplane, but could not

get her to make more than short hops. Mr. Hotchkiss and Mr. Pickles flying, latter went for brevêt and flew remarkably well, averaging 15 mins. for each five 8's at about 300 ft. to 400 ft. Mr. Hotchkiss with Capt. Nicholas, Lieut. Playfair, and Capt. Boger. Mr. Merriam up behind Mr. Summerfield and Capt. Brabazon. Then with Lieut. Wanklyn. Major Higgins and Capt. Nicholas and Lieut. Atkinson flying. Mr. Merriam with Lieut. Playfair and Capt. Boger. Mr. Hotchkiss with Lieut. Hope and Lieut. Wanklyn. Capt. Macdonell, Mr. Holyoake, Lieut. Atkinson, and Major Higgins all flying. Mr. Merriam with Lieut. Hope. Mr. Hotchkiss with Mr. England.

Brighton.—Mr. Grahame-White busy giving passenger flights on Henry Farman hydro-biplane.

Eastchurch.—Commander Samson flew Henry Farman from Brambledown to Burntwick Island. In evening new naval 100-h.p. triple twin Short tractor machine made its appearance, fitted with two 50-h.p. Gnômes, the front one being direct coupled, the rear one driving to chain "tractors," the ailerons are double acting, working both above and below the planes, which has made the lateral control far more sensitive. Lieut. Briggs out on school machine, also Commander Samson on Short monoplane, which he is flying very well.

Farnborough.—Very misty, early, Major Burke on *B.E.5.*, then Lieut. Cockerell doing straights, turned machine over, doing considerable damage. M. de Havilland on *B.E.4.* In the evening Capt. Reynolds on Henry Farman for 30 min. with passenger. Mr. de Havilland on *B.E.4.*, carrying passengers. Mr. Cody out on biplane first time since smashed by Lieut. Kelly. Now with 120-h.p. engine, also rudder of monoplane. Did several good circuits, one hour's flight by Moineau on 100-h.p. Bréguet.

Hendon.—Mr. H. J. D. Astley took out G. B. Blériot and flew to Brooklands for tea. On way back at 3,000 ft. ran into thick wall of fog at Ealing. Came down and found himself by White City. Turned left and flew on, seeing nothing. Came down again, all houses below. Went on, found big building on hill close below, thought it was Harrow. (Turned out to be Alexandra Palace.) Headed to right and went on, then saw huge domed church with cross on top, and thought it was St. Paul's—really somewhere Islington way. Turned left and went on till saw a green field. Came down there and found himself at Edmonton.

At Deperdussin School, in evening, Capt. Dawes and Messrs. Brock and Harrison doing straights for about 30 mins. Lieut. Tucker rolling on taxi.

The Plain (Bristol School).—Mr. Busteed only one out.

The Plain (R.F.C.).—Major Brooke-Popham out on Avro round Plain, and later three long flights Capt. Hamilton on Deperdussin flying round the Plain for a long time.

R.F.C. Central School.—Capt. Fulton twice on Avro, one solo and then with Air Mechanic Hodgson as passenger. Capt. Gerrard, R.M.L.I., once with Capt. Cordner for tuition on *Short 44.* Eng-Lt. Randall, R.N., one flight on *Short 44.*

Weymouth.—M. Fischer passenger-carrying on hydro-biplane, among first passengers being Mr. E. W. Tilley, of Dorchester, the local pioneer of cycles and motors, and now of aeroplanes—as he should be. Local reports speak of enthusiasm of Portland convicts for hydro-aeroplane. Doubtless useful if all ports being watched.

Windermere.—Mr. Oscar Gnosspelius doing good straights. His new floats very smooth, but seemed to cling to the water, and want lifting off instead of rising automatically. Hydro-monoplane out with passenger for official tests; all passed satisfactorily. *Water Hen* out for short exhibition flight.

WEDNESDAY, July 24th.

Brooklands.—At Avro School, early morning, Mr. Simms flying for half an hour on School machine at over 400 ft. In evening machine again out for a few minutes, pilot getting a hot shower bath from cracked water jacket. Ancient 35-h.p. Green had then done 30 hours' flying without a single miss or failure of any sort in the air.

At Sopwith School, morning, Messrs. Perry, Hedley, and Stud on Farman, and again, with addition of Major Trenchard and Mr. Lane, in evening.

At Bristol School, Mr. Merriam out with Lieut. Playfair, Lieut. Hope and Capt. Boger. Mr. Hotchkiss out with Capt. Nicholas, then with Mechanic Willis, testing badly-running Gnôme. Major Higgins flew for brevêt in good style. Capt. Nicholas flying circuits with failing Gnôme. Mr. Hotchkiss up again with Willis on same machine, but could not get engine right. Capt. Macdonell, Lieut. Atkinson and Mr. Holyoake all flying. Mr. Merriam with Mr. Summerfield, Mr. Hotchkiss with Capt. Brabazon, Mr. Holyoake then flying for brevêt, flying well in bumpy wind. In evening Mr. Hotchkiss out alone. Then with Lieut. de la Ferté and Lieut. Hope, then behind Major Ashmore. Mr. Merriam with Lieut. Playfair and Capt. Brabazon. Capt. Nicholas flying alone figures of 8. Captain Macdonell and Lieut. Atkinson flying. Mr. Hotchkiss, on No. 19, trying to get engine right. Mr. Merriam with Capt. Boger and Lieut. de la Ferté. Mr. Hotchkiss with Lieut. Wanklyn. Mr. Hotchkiss with Lieut. Hope. Mr. Merriam up with Lieut. Playfair. At 8 o'clock Mr. Pixton arrived from Salisbury with passenger on monoplane, taking an hour and five minutes, coming into aerodrome at about 200 ft.

Brighton.—Usual passenger-carrying by Mr. Grahame-White, among passengers being Mr. C. Thomas Stanford, Mayor of Brighton, much gratified at seeing all of his town at once. Good flying also on same machine by Mr. J. L. Travers, now finding his proper place as a fine flier recognised. Mr. Harry Preston's motor boat *My Lady Molly* tried to "take on" the aeroplane, but in spite of 10 min. allowance failed to do so. At night, ascent in dark by Mr. Grahame-White, with machine illuminated.

Eastchurch.—Capt. Gordon, R.M.L.I., to Burntwick Island to fly Henry Farman hydro-aeroplane, which he did, flying for two hours up and down the Medway. Commander Samson, R.N., out on Short monoplane. Lieut. Briggs, R.N., out on school machine; afterwards followed by Private Edmunds. New Naval 100-h.p. triple tractor Short biplane flew the one hour test with Mr. McClean as pilot and Lieut. Malone as passenger, successfully accomplishing the test.

Farnborough.—Capt. Reynolds on Henry Farman, several flights, taking passengers, then Major Moss for 20 min. flight at 2,000 ft. Capt. Fulton flew new Avro to Salisbury. Major Brooke-Popham and passenger flew over from Salisbury on Avro. Mr. de Havilland out on Factory machine experimenting with quick-firer. Mr. Cody out on biplane, carrying passengers, and on one flight taking three passengers. Airship *Gamma* out scouting. Monoplane passed over at about 3,000 ft., apparently Bristol, making for Brooklands.

Hendon.—At Grahame-White School, morning hopeless—wind and fog. Mr. Blackburn out at 6.26 p.m. testing air and found it rather puffy. However, Mr. Cholmondeley out for straights on No. 7, followed by Mr. Allen doing straights with Mr. Blackburn. Then Mr. Roupell rolling on Blériot, while Lieut. Rathborne and Mr. Hoelscher up with Mr. Blackburn, latter breaking some of the tail-skid wires. Then Baroness Schenck out, but engine broke a tappet rod, and so ended school work for evening.

At Bleriot School, 6 a.m., Mr. Hall two good straights and a circuit on *L.B.2.*, and Mr. Sacchi couple of good straights on same. In evening M. Gandillon rolling on *L.B.1.* Mr. Welburn on *L.B.2*, and Mr. Hall straights. Mr. Sacchi also out.

At Deperdussin School, all pupils practising on brevêt machine. Lieut. Tucker and Capt. "X" showing great improvement on taxi.

Long Eaton.—Mr. B. C. Hucks arrived on Blériot from Birmingham, having landed at Loughborough on the way, and given exhibitions there.

Stratford-on-Avon.—M. Salmet arrived from Worcester on Blériot, having demonstrated at Evesham *en route.* After further demonstrations left for Gloucester.

The Plain (Bristol School).—Mr. Busteed several flights with and without passengers. Mr. Pixton then with Mr. Fellows on monoplane to Brooklands, arriving just under an hour.

The Plain (R.F.C.).—In morning, Major Brooke-Popham and Capt. Hamilton, on Avro and Deperdussin machines, flying for long time in breeze, observing artillery fire. In evening, Capt. Hamilton doing good flying with several passengers. Later in evening Major Brooke-Popham made short flight round aerodrome before starting with passenger for Farnborough, and getting there in 40 mins.

R.F.C. Central School.—Capt. Gerrard, R.M.L.I., two flights on *Short 44*, once taking Asst. Paymr. Lidderdale for tuition. Eng.-Lt. Randall, R.N., one flight on *Short 44.* Capt. Fulton flew over from Farnborough on the third Avro tractor biplane, this being the second Avro at the school.

Weymouth.—Much passenger-carrying by M. Fischer, and flights over fleet and round the town on Henry Farman.

Windermere. — Hydro-monoplane officially approved and taken over by Lieut. Gregory, R.N., for the Admiralty. *Water Hen* passenger carrying, but not well owing to engine missing. Visitors' views:—Lady: "I cannot understand what keeps it up, unless, perhaps, it is all the electricity produced (sic) by the engine." Gentleman: "I suppose you fill the float with gas?" Mr. Wakefield: "No; it would not be worth while. The

quantity is so small." Gentleman: "Oh, but you could compress an enormous quantity into that float. Quite enough, I should think, to support the whole machine, especially if you used pure hydrogen. Then you would be much safer."

THURSDAY, July 25th.

Brooklands.—At Sopwith School, early, Messrs. Hedley, Lane, and Harvey on Farman. In evening, Mr. Copland Perry flying Burgess-Wright and Farman.

At Martin-Handasyde's, Mr. Gordon Bell took out Antoinette-engined machine with a new propeller. Great improvement, machine climbing rapidly to about 2,000 ft.

Mr. Eric Pashley out on Sommer just before dark, flying well.

At Bristol School, Mr. Merriam out with Mr. Pickles as passenger. Then with Lieut. Hope and Lieut. Playfair. Mr. Hotchkiss behind Lieut. Wanklyn and Capt. Boger. Capt. Nicholas and Capt. Macdonell flying alone. Mr. Hotchkiss with Capt. Brabazon. Mr. Merriam behind Lieuts. Playfair and Hope, and Capt. Brabazon. Capt. Nicholas again alone. Mr. Merriam gave Mr. "Darracq" trial flight. Lieut. Arthur out on two-seater monoplane for about 10 minutes at 800 ft. Mr. Hotchkiss two straights on two-seater monoplane, then up for ¼ hour at about 800 ft. Lieut. Arthur took up Capt. Brabazon for ¼ hour to about 1,200 ft. Mr. Hotchkiss then up when weather was getting bumpy through heat, for 20 mins., reaching 1,600 ft. by altimetre and at that height practising right and left turns with a spiral *vol plané*. Excellent display for first time on 50-h.p. monoplane. In evening Mr. Merriam with Capt. Brabazon. Weather still gusty. Later, Mr. Hotchkiss out alone on two-seater monoplane flying at 2,000 ft. for 20 mins. At 8.15 p.m. Lieut. Arthur on two-seater monoplane with Major Ashmore as passenger for ¼ hour at over 1,000 ft. Then with Mr. Jennings for 10 mins., flying high and coming down with a spiral glide. Weather too bad for biplane work.

Brighton.—More passenger-carrying by Mr. Grahame-White on Farman, including one almost to Newhaven with Mr. Frank Hedges Butler, the well-known wine merchant, of Regent Street, who is a keen balloonist. At night much flying on illuminated machine, with very pretty effect.

Cirencester.—M. Salmet arrived from Gloucester, *via* Cheltenham, having covered seven miles (Gloucester to Cheltenham) in 4 min. Gave exhibitions there and went on to Cirencester.

Dover.—Lieutenant Parke, R.N., and passenger arrived on new Henry Farman, 50-h.p. Gnôme-engined biplane about 5.45 a.m. in tricky wind, but going well. Lieutenant Spencer Grey, R.N., also arrived about same time with bluejacket on Short *T.5.*, both from Eastchurch. The Short was one of the hydroplanes used at Spithead, less floats. In evening, Capt. Gordon, R.M.L.I., went up on Farman and made a short circuit, and then went up again with passenger. Later Lieut. Grey up on Short and made capital flight for about three-quarters of an hour, and Lieut. Parke up twice on Farman for long flights, and made some splendid banked turns. Large company present, quick in showing their appreciation for splendid flying.

Eastchurch.—Lieut. Spencer Grey, R.N., on 70-h.p. tractor, accompanied by Lieut. Parke, R.N., on Henry Farman, flew to Dover and damaged a wheel on landing. Commander Samson, R.N., took school biplane to some 2,000 ft., Lieut. Malone, R.N., flew new 100-h.p. triple which he handled very well. Lieut. Briggs, R.N., out on school machine.

Farnborough.—Raining slightly, Major Moss on Henry Farman, taking passengers, one flight up about 2,200 ft. Airship *Gamma* 4 hrs. flight. In evening Mr. Cody out doing circuits. Major Moss and Capt. Reynolds on Henry Farman, both flying well despite choppy wind. Mr. de Havilland out on *B.E.1.*, and then *B.E.4.* Major Broke Popham and passenger flew to Salisbury on Avro.

Hendon.—At Grahame-White School, in morning, Capt. Salmond out at 4.21 a.m. (circuits), followed by Mr. Cholmondeley (straights), and Lieuts. Rathborne and Stopford (straights) with Mr. Blackburn. Capt. Salmond up again (right-hand circuits and eights—not very easy on a school machine), and Mr. Cholmondeley (first circuits). Lieuts. Rathborne and Stopford out again, and then a third lesson all round, finishing with flight by Mr. Manton, who recently took his brevêt, and is now in Grahame-White works. No school in evening; but Messrs. Astley and Desoutter out on the Gordon-Bennett Blériot, the latter flying for an hour and a quarter, and making some very fine exhibitions.

At Bleriot School.—Messrs. Sacchi and Hall on *L.B.2.*

At Deperdussin School, early, Mr. Gill flying circuits on brevêt machine making right and left turns; Messrs. Brock and Harrison and Capt. Dawes were doing straights on same.

Malton.—Mr. Brereton on Blackburn made some fine flights at Malton Hospital fête, making numerous circuits above fête ground and round about Malton. Unfortunately during last flight he landed, after encountering an air pocket, in a cornfield, upset machine, and damaged it somewhat.

Stockton-on-Tees.—Couple of fine flights by Mr. Hamel on Blériot. Ignorance of local population colossal. Calculated that of 100,000 spectators only 2 per cent. had ever seen an aeroplane before.

The Plain (Bristol School).—Mr. Busteed out on monoplane, as also Messrs. Valentine and England.

The Plain (R.F.C.).—Capt. Hamilton on Deperdussin. Major Brooke-Popham arrived back from Farnborough without passenger, in stiff breeze.

R.F.C. Central School.—In morning Capt. Fulton four flights on *Avro No. 2*, taking up Air Mechanics Hodgson, Seabrook, Dismore, and Warren in succession. In evening, in spite of strong bumpy wind, Capt. Fulton two flights on Avro and Lt. Longmore, R.N., three flights on *Short 44*, and taking up Staff-Sgt. Thomas and Sgt. Vagg for tuition.

Weymouth.—M. Fischer on the Farman hydro-aero-taxi busy as ever.

Windermere.—*Water Hen* out with passengers at frequent intervals all day. Carried nine in all. Flying strong. Weather ideal. Lieut. Gregory, R.N., out with hydro-monoplane.

FRIDAY, July 26th.

Brooklands.—At Avro School, early, Mr. Simms on School 'bus for 20 min. Mr. Simms again out in evening for 10 min.

At Martin Handasyde's, Mr. Gordon Bell on Chenu-engined machine for a couple of circuits, engine testing, in the small hours.

At Sopwith School, early morning, Major Trenchard making figures of 8 on School Farman. Mr. Perry coaxed it to 1,500 ft. Mr. Hedley also figure of 8. In evening, Mr. Perry out on *A.B.C.* Burgess-Wright, suffering from slight magneto trouble. Major Trenchard on Farman for 10 min.

At Bristol School, Mr. Merriam with Capt. Brabazon and Lieut. Hope. Mr. Hotchkiss testing new machine, but had engine trouble. Then behind Major Ashmore and with Lieut. de la Ferté, going out over Chertsey district. Capt. Nicholas, Lieut. Atkinson flying. Mr. Merriam with Lieut. Parker and Lieut. de la Ferté. Mr. Hotchkiss on 2-seater monoplane with Capt. Nicholas. Capt. Nicholas then on biplane for brevêt. In evening, Mr. Hotchkiss with Mr. Parker and Lieut. Hope. Lieut. Atkinson for a circuit, then straight away for his brevêt, keeping about 150 feet with ease and assurance. Mr. Merriam behind Major Ashmore, Capt. Brabazon with Mr. "Darracq" and Mr. Parker. After the brevêt tests Mr. Hotchkiss flew the biplane home with himself, Lieut. Atkinson, Mr. Sabelli, and Mr. Sippe (the observers) all on board. Lieut. Arthur on 2-seater monoplane with Prince Cantacuzene 20 mins. Mr. Smith-Barry also on monoplane, and Mr. Hotchkiss afterwards with Mr. Campbell as passenger. Capt. Bertrand Dickson flew two circuits on a biplane. Mr. Hotchkiss with Major Ashmore. Mr. Merriam again with Mr. "Darracq" and Lieut. Hope.

Brighton.—Flight by Mr. Grahame-White to Newhaven with one of the Paulhan mechanics to catch boat to France. Useful demonstration of quick transport. Among other passengers during day Mr. Harry Preston, of Royal Albion Hotel, who has done much to popularise aviation in Brighton. Mr. Travers also taking up numerous passengers.

Cirencester.—Fine exhibition flying by M. Salmet in aid of funds of local Cottage Hospital.

Dover.—Lieut. Parke, R.N., returned to Eastchurch on Farman in morning. In afternoon Lieut. Grey left Dover for Dymchurch, but came down at Shorncliffe, picked up passenger and continued flight to Dymchurch, and arrived back at Dover about 5.30. He left for Eastchurch about 6.45 with bluejacket, flying magnificently.

Eastchurch.—The Memorial Window to the late the Hon. Chas. Rolls and Mr. Cecil Grace, in the parish church, was unveiled by the Archbishop of Canterbury. In the afternoon Mr. Ogilvie went out on the N.E.C.-Wright and had hoped to give the Archbishop a flight, for which he was quite anxious, but the wind proved too bumpy. In evening, Mr. McClean, Commander Samson, R.N., and Lieuts. Malone and Briggs, R.N., all doing good work.

Exmouth.—Arrival of M. Fischer and M. Hubert from Weymouth on Farman, followed by exhibition and passenger flights.

Farnborough.—Major Moss, 30 min. flight on Henry Farman. Mr. de Havilland on *B.E.4.* M. Verrier flew new

Maurice Farman over from Hendon. In evening Mr. Cody out on biplane doing fine glides from 2,000 ft., flying till quite dark. M. Verrier on Maurice Farman doing War Office tests, also some very fine flying. Mr. de Havilland on *B.E.4.*, Capt. Mackworth on *B.E.1.* flying very high. Major Moss on Henry Farman in landing broke undercarriage through trying to avoid mark post.

Hendon.—At Grahame-White School.—Few flights in morning, in intervals of fog, wind and rain; Baroness Schenck, Capt. Salmond and Mr. Cholmondeley (circuits), and Lieut. Rathborne (straights) with Mr. Blackburn. In evening, Mr. Roupell out on 25-h.p. Blériot, followed by Lieuts. Allen and Stopford and Small, and Mr. Hoelscher, all doing straights with Mr. Blackburn. Then Mr. Cholmondeley tried to rise too quickly, and pancaked. All would have been well but that his forced landing place took just in front of some cows, with one of which he collided, the shock breaking a strut; the "coo" was undamaged, which shows how things have changed since the days of George Stephenson. [*Per contra*, the reader is referred to Mr. Cody's experience recently.—Ed.]

At Bleriot School, new motor having been fitted to *L.B.2.*, Mr. Metford tested machine. Then Messrs. Sacchi, Welburn, Hall, and Teulade all doing straights, Messrs. Sacchi and Hall also circuits. M. Gandillon rolling on *L.B.1.*

At Deperdussin School, all pupils making excellent progress. Messrs. Brock and Harrison flying on brevêt. Capt. "X" improving on taxi.

Newcastle-on-Tyne.—Mr. Slack, the I.C.S. pilot, arrived on Blériot from Edinburgh *via* Dunbar, Berwick, Alnwick, and Morpeth. Enthusiastically received.

The Plain (Bristol School).—Mr. Valentine on monoplane. Mr. Busteed on another with Mr. Harrison as passenger.

The Plain (R.F.C.).—In morning Major Brooke-Popham doing good flying. Later took up Sergt. Goodchild and Air-mechanic May. Capt. Hamilton flying well on Deperdussin for ½ hour, two flights, and later another flight.

Windermere.—*Water Hen* out passenger carrying. Many visitors. Perfect day.

SATURDAY, July 27th.

Brighton.—M. Paulhan endeavouring to get little Curtiss hydro-aeroplane to fly. Engine excellent, but machine reluctant to leave *aqua pura*. Finally got off a little by going head to wind, but refusing to lift down wind. Evidently not an aero-hydroplane. Mr. Grahame-White on Henry Farman busy as usual. Flew over County Ground where Australians' game was suspended momentarily to watch evolutions. Mr. Travers also busy.

Brooklands.—At Sopwith School, early, Mr. Perry, Major Trenchard, and Mr. Hedley on Farman. In early evening, Mr. Perry on *A.B.C.* Burgess-Wright for bomb-dropping competition and for cross-country race, winning latter from Mr. Hotchkiss on Bristol two-seater monoplane by 30 sec. or so.

At Avro School, Mr. Simms made a flight of 40 min. between 5 a.m. and 6 a.m., reaching a height of 700 ft. to 800 ft. Afterwards tried machine with a passenger for straights. In afternoon Mr. Simms first out for a circuit in gusty wind, but buckled a wheel in landing. Later, starting again after replacement, a shock absorber clip gave way, terminating proceedings.

At Spencer School, Mr. Spencer out early alone, and with Mr. Lewis Marcus. In afternoon Mr. Spencer hard at work passenger carrying.

Handley Page Monoplane, arrived about 6 p.m., having come *via* the Thames from Fairlop in one hour with tricky breeze with Mr. E. Petre up. Machine much admired, and its capacity for banking viewed with amazement.

At Bristol School, 4.15 a.m., Mr. Merriam with Major Ashmore. Mr. Hotchkiss behind Capt. Brabazon and Major Ashmore. At 5.30 p.m. Mr. Merriam out.

After competitions, Mr. Hotchkiss on monoplane with Prince Cantacuzene as passenger, rising to 1,500 ft. in 6½ mins., flying over surrounding country for 25 mins., shutting off engine at that height and doing a spiral *vol plané*, landing in front of spectators. Mr. Merriam then with Lieuts. Playfair and Wanklyn. Mr. Hotchkiss with Mr. Gould and Major Ashmore. Mr. Merriam with Mr. "Darracq" and Capt. Brabazon. Lieut. Arthur up on monoplane with Lieut. Parke, R.N., and Mr. Crossman. Mr. Hotchkiss with Capt. Miller.

Coventry.—Mr. B. C. Hucks on Blériot arrived from Loughborough after calling and giving exhibitions at Leicester on the way. Leicester to Coventry 26 miles in 23 minutes with East wind.

Eastchurch.—Evening was one of nicest we have had for some time, and every advantage was taken of it. Commander Samson, R.N., Lieuts. Malone and Briggs, R.N., Mr. McClean, Private Edmunds, and Mr. Jezzi all flying practically the whole evening. Early in morning Lieut. Briggs took his brevêt on the school machine.

Fairlop (Essex).—Mr. E. Petre on Handley Page monoplane left for Barking and then up river to Brooklands. Covered 55 miles, with East wind, in a little over 50 minutes, though machine does not claim to be fast.

Farnborough.—Lieut. Longmore, R.N., flew Maurice Farman to Salisbury. Mr. Cody left for Salisbury on biplane to take part in Military Aeroplane Competition.

Hendon.—Excellent exhibition flying in afternoon despite wind. No racing, but couple of private matches between Sig. Nardini and M. Desoutter, both won by latter, who later went for altitude test and got up to 5,400 ft. and did some fine exhibition flying.

At Bleriot School, Messrs. Sacchi, Welburn and Hall straights on *L.B.2.*

At Deperdussin School, all pupils out early, Mr. Harrison showing great improvement flying very straight and steadily. In afternoon Lieut. Porte, R.N., took out new British-built 2-seater Deperdussin with 60 h.p. Anzani and gave splendid exhibition flight. Later in evening he flew to Farnborough in 35 minutes at over 3,000 ft. with this machine, which is destined for the War Office.

Newcastle-on-Tyne.—Mr. Slack went to Gosforth Park in afternoon to test weather, intending to fly South. Evidently too bad to fly, but crowd became obstreperous, and Mr. Slack bravely, but foolishly, went up to keep them quiet. Very dangerous flight, and Mr. Slack and his Blériot far too good to waste on appeasing a mob of "Geordie" roughs.

Sunderland.—Mr. Hamel endeavouring to fly here on Blériot, ran into fog at Hart and had to come down in field. Fortunately alighted without damage.

Swindon.—M. Salmet on Blériot arrived from Cirencester Afterwards off across country to Blunsden, Cricklade and back.

The Plain (R.F.C.).—In evening, Capt. Hamilton on Deperdussin all evening. Further flights stopped by rain and wind getting up. Capt. Hamilton on one flight took up Lieut. Maple, of R.F.A. During day Mr. Hamel's Blériot arrived for Military trials. About 8.30 in evening Mr. Cody was seen approaching in his 120-h.p. biplane with a passenger, for Military trials. The machine averaged 73 miles an hour coming here.

R.F.C. Central School.—Capt. Gerrard, R.M.L.I., one flight on *Short 44*. Lt. Longmore, R.N., arrived from Farnborough on new Renault-Maurice-Farman biplane. First machine of the type at the school. Heavy rain prevented more flying.

SUNDAY, July 28.

Brooklands.—Gales and showers, no flying.

Eastchurch.—A day of gales, and no flying possible.

Hendon.—Howling gale all day. No flying except for one plucky attempt to give a show by Mr. Lewis Turner on a box-kite. Brave man!

"One Touch of Nature."

Mr. E. P. Elworthy, writing from Elisabethgrad, S. Russia, to renew his subscription to The Aeroplane, says: "We had some flying here lately, Efimoff on a 50-h.p. Gnôme Blériot doing the usual stunts' while the usual crowd of 'deadheads' watched him from around the racecourse (entrance thereto 50 kopecks), which he used as aerodrome."

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Hydro-aeroplaning over Windermere.

BY MISS GERTRUDE BACON.

I understand, and I can readily believe, that the leader, and the majority of the followers of the misguided party who are still endeavouring to drive the Lakes Flying Company off Windermere, know neither the machines, the men, nor the circumstances. Surely this *must* be so, or they would not lend themselves to a movement so absurd, so unjustified, and so abominably unpatriotic. I only wish that to one and all of them could be afforded the opportunity I have just enjoyed.

Mr. Wakefield and Mr. Stanley Adams both met me at Lake Side, and in their neat little motor-launch, the *Sara,* whisked me across the water to "The Hill of Oaks." Here, in two large, substantial hangars are housed two of the four "water-planes" at present on Windermere.

"I don't claim any artistic merits for the sheds," said Mr. Wakefield, "but that is because, so far, I can get no one to design me a picturesque yet suitable building. I hope presently to erect one that shall be worthy of the landscape." The hangars in question are no eyesore—being much less obtrusive than the majority of the boat-sheds which disfigure the far more beautiful portion of the lake at Bowness—and it is hard indeed to understand the local objection to their presence here in a wide and almost deserted stretch of water, quite remote from habitations.

Poised on the sloping rail outside the hangar rested the *Water Hen,* the Lakes Flying Company's own biplane. Light, shapely, and graceful is she, with her bamboo framework, small planes, cross tail and Curtiss-like elevator. Gently she was let down into the water, where she rested on her big hydroplane float. Two cylindrical air-bags, known locally as the "Wakefield sausages," are suspended beneath the lower planes, but are not generally in contact with the water.

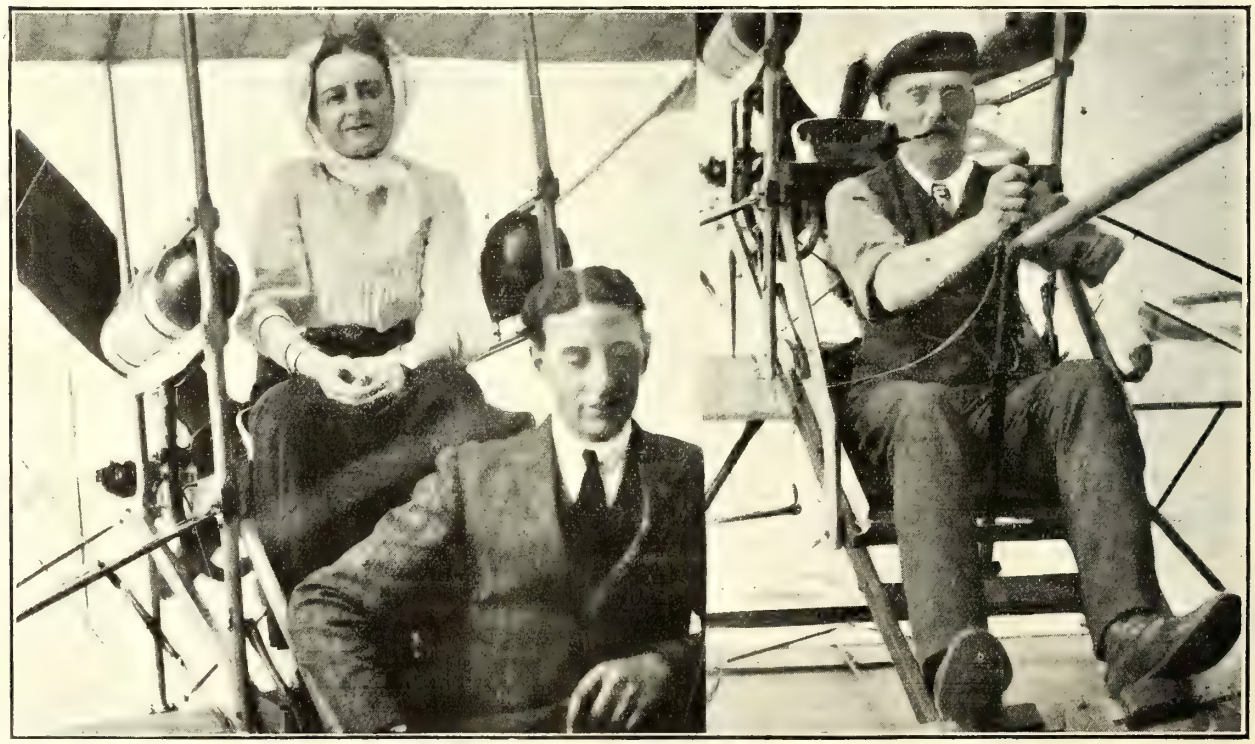
I scrambled easily to my perch behind and above the pilot's seat, occupied by Mr. Stanley Adams. The heat (it was a most broiling day) had made the Gnôme bad tempered, and only after careful humouring and plentiful "doping" did it condescend to start. But, once off, she settled down to business, and away we went across the lake with a rythmic purr of parting waters, but no sort of splashing. Then I felt the water-bird give a lifting heave, the purring ceased, the blue waters dropped down beneath, and we were in the air.

Soon we reached the more populated parts of Windermere. We passed right over the Ferry Hotel and its cheering crowd, and then the boat-dotted bay of Bowness. We were some 600 ft. high here, and, looking directly downwards, the bottom of the lake was distinctly and curiously visible in its shallower parts. The glorious upper reaches of the lake, with its surrounding mountains, opened out in matchless panorama, and the wide, practically empty water stretched for miles and miles ahead. Truly this beats every other flying-ground.

We spied out all the secrets of the lake that afternoon—all the tree-embowered gardens, all the lovers in boats moored in sequestered nooks. They didn't mind a bit; they waved in friendliest greeting, everybody waved—the passengers on the crowded steamers, the bathers in the secluded bays, the garden party guests on the lawns of the big private houses—even (somewhat more sedately) the very high-class motorists at the Nowwood Hotel. The higher we went up the lake the more rapturous became the welcome, for the company, mindful of local protest, fly but very seldom in these more populated waters. But, indeed, one sees that the danger even from a directly falling aeroplane is practically nil—so big is the lake and so really few the boats on its surface, while, with any sort of power of choosing a landing-place no sort of risk can be run. The danger of a skidding car in crowded Grasmere must be infinitely greater.

We treated them to a double circle over Waterhead and Ambleside, then back again down the wooded western bank right to Lakeside, where we waved welcome to a train load of tourists, and eventually returned to Hill of Oaks after a 41-minute flight, and the first passenger flight round the whole 25-mile circuit of the lake.

There are three other water-planes on Windermere—one the fine monoplane of Mr. Gnosspelius, at this moment, poor man, struggling to combine aviation and a bad attack of sciatica; a Roe biplane, and the Admiralty Deperdussin. It was Mr. Wakefield's latest, and perhaps greatest, triumph to have converted this last into a successful hydro-aeroplane. How magnificently she flies I had full opportunity of seeing next morning, when I spent happy hours in the *Sara* following her course as she darted about, with and without a passenger, over the lake, rising from the water and settling again with the greatest ease. Her evolutions were the delight of the Windermere tourists, who show the keenest interest in the water-planing experiments, while Bowness, Ambleside, and the Lakeside Hotels are unanimous in their satisfaction at an industry that provides such a splendid attraction for their visitors. While as to the national importance of the splendid work being done—but that, in the historic phrase, is another story.



Miss Bacon and Mr. Stanley Adams ready to start. On the right Mr. E. W. Wakefield takes the helm.

The Royal Aero Club.

At the meeting of the committee on the 16th ult. the following new members were elected :—Lieut. Reginald Cholmondeley, F. B. Fowler, F. Henry Fowler, W. Hugh Spottiswoode. Total membership to date, 1,396.

The following aviators' certificates were granted :—243, V. H. N. Wadham (Farman, Sopwith School, Brooklands); 244, Lieut. P. L. W. Herbert (Farman, Sopwith School, Brooklands); 245, 2nd Lieut. A. Christie, R.F.A. (Bristol, Bristol School, Brooklands); 246, Lieut. H. I. Bulkeley, R.E. (Bristol, Bristol School, Brooklands); 247, Lieut. E. V. Anderson (Bristol, Bristol School, Brooklands); 248, R. H. Kershaw (Howard Wright, Grahame-White School, Hendon); 249, Lieut. K. Rawson Shaw (Bristol, Bristol School, Salisbury Plain); 250, R. A. Lister (Bristol, Bristol School, Salisbury Plain).

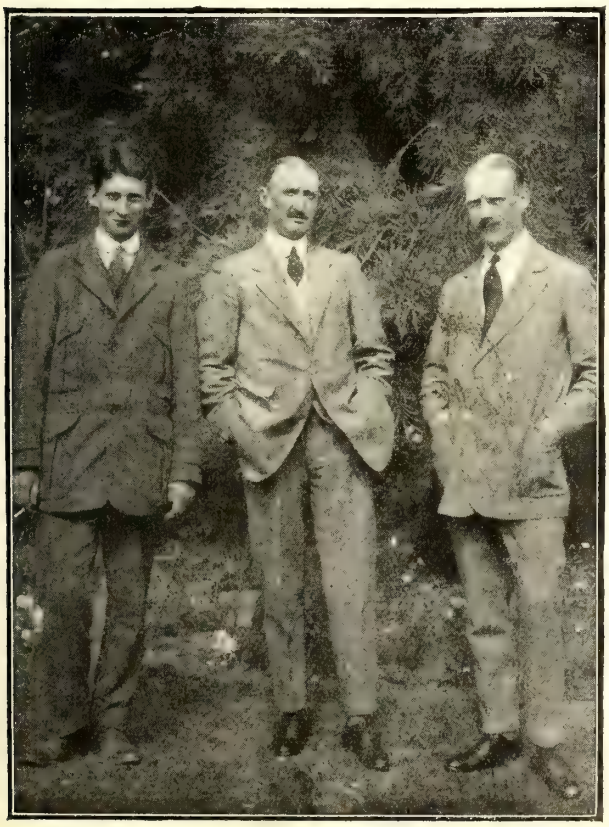
A letter from the Aero Club of America, requesting the club to sanction the granting of a certificate to Mr. R. B. Russell, was considered, and the necessary permission was granted.

The special certificate was granted to 5, Lieut. A. G. Fox, R.F.C. (Bristol biplane). Cross-country course, Lark Hill to Cheltenham and back.

At the request of the War Office the club agreed to place the services of the secretary, Mr. Perrin, at the disposal of the Judges' Committee during the Military Aeroplane Competition, at Salisbury Plain, during this month.

Flights over the Sea. — The following resolution was unanimously passed :—"Resolved that aviators shall be prohibited from attempting flights over the sea, beyond the three-mile limit, unless suitable precautions have been taken to render their aircraft capable of flotation."

This action has been taken by the Royal Aero Club so that, in the event of an aviator having to descend on to the water, there may be a reasonable chance of his being rescued and thus avoid, as far as possible, a recurrence of the fatal accidents which have happened through flights over the sea having been attempted by aviators on machines that are not capable of floating. The Royal Aero Club feels that it is against the best interests of aviation that unnecessary risks should be incurred, and it will be constrained to take such action as may appear necessary or desirable against any aviator neglecting to take suitable precautions.



Three new Bristol pilots—Mr. Holyoake, Major Higgins and Captain Macdonell.

Public Safety and Accidents Investigation Committee.—The following official representatives were appointed :—Yorkshire, Mr. Stuart H. Hirst, Leeds; Mr. H. E. Harwood, Leeds. East Riding, Mr. J. Wilkinson, Hull; Southport, Mr. Leonard Williamson; Scotland, Mr. J. A. Sillars, Mr. John R. Renwick, and Mr. James G. Weir.

British Manufacturers' Sub-committee.—The ballot for the election of this sub-committee has resulted in the following being elected :—Aeroplane manufacturers :—J. W. Dunne (Blair Atholl Aeroplane Syndicate, Ltd.), C. Grahame-White (Grahame-White Aviation Co.), L. Howard-Flanders (L. Howard-Flanders, Ltd.), H. P. Martin (Martin and Handasyde), Lieut. J. C. Porte (British Deperdussin Aeroplane Co., Ltd.), A. V. Roe (A. V. Roe and Co.), H. Short (Short Bros.), T. O. M. Sopwith, G. Stanley White (British and Colonial Aeroplane Co., Ltd.), Howard T. Wright (Coventry Ordnance Works, Ltd.). Aeroplane Engine Manufacturers :—R. L. Charteris (All-British Engine Co., Ltd.), J. E. Hutton (Wolseley Tool and Motor Car Co., Ltd.), R. J. Isaacson (Isaacson Radial Engine Co., Ltd.), F. May (The Green Engine Co.), J. C. Mort (New Engine Motor Co., Ltd.).

At the committee meeting on the 24th the following aviators' certificates were granted :—251. Harold Sweetman-Powell (Burgess-Wright biplane, Sopwith School, Brooklands). 252. Lieut. Hugh Lambert Reilly, I.A. (Deperdussin monoplane, Deperdussin School, Hendon). 253. Air Mechanic William Victor Strugnell (Bristol biplane, Army School, Salisbury Plain). 254. Lieut. F. M. Worthington-Wilmer (Bristol biplane, Bristol School, Brooklands). 255. Capt. Robert C. W. Alston, H.L.I. (Farman biplane, Sopwith School, Brooklands). 256. Lieut. Claude Albemarle Bettington (Bristol monoplane, Bristol School, Salisbury Plain). 257. Capt. Chas. Darbyshire (Vickers monoplane, Vickers School, Brooklands). 258. Robert William Rickerby Gill (Deperdussin monoplane, Deperdussin School, Hendon). 259. Edward Petre (Handley Page monoplane, Handley Page School, Fairlop). 260. Lieut. Francis FitzGerald Waldron (Bristol biplane, Bristol School, Brooklands). 261. H. R. Simms (Avro biplane, Brooklands).

The following Royal Aero Club Special Certificate was granted :—6. Capt. P. Hamilton (Deperdussin monoplane). Cross-country course : Lark Hill to Weymouth and back.

Flying in Australia.

"Captain" Penfold, the Australian aeronaut, has been kind enough to send cuttings from an Australian paper giving particulars of an attempt to get up a race on June 15th from the Ascot racecourse to Rosehill racecourse, between Hart, the Australian, on an aged Bristol biplane, and Stone, an American, on a Metz (Blériot type) monoplane. There was a strong wind high up, which, of course, the crowd below did not understand. To quote the Sydney *Daily Telegraph* : "The rising ground overlooking the course was black with free-show lovers, who loudly proclaimed the show a 'frost,' because two men declined to risk their necks by going up on what Hart described as a 'suicide expedition,' but would not risk two shillings of their money on the show." Despite the wind, both aviators pluckily gave short exhibition flights, Hart damaging his machine in doing so.

An Aero Show for 1913.

The Aero Section of the Society of Motor Manufacturers and Traders decided at their last meeting that a show should be held in London in May of next year. It is certainly good news to hear that we are again to have an aeronautical show in this country, but it is rather open to debate as to whether May is the best time or not.

In favour of that date one may argue that May, being the height of the London season, the very best class of people will be in Town, and, therefore, there should be a good gate of the right class. On the other hand, the show in May would probably interfere considerably with ordinary school work, and possibly with the constructional work of the various manufacturers, because May is one of the months in which a great deal of flying is done. Furthermore, by that time any modifications which manufacturers produce as the result of seeing the latest French developments in the Paris Show in October, ought by then actually to be in use, whereas owing to the show it is quite probable that many improvements which might otherwise be in use by January or February may be held back to May for fear of their being copied by other constructors and produced at the show, so that in this country progress may be held back three or four months instead of being held forward. It is also argued against the date that foreign buyers, having seen the French machines in October, will not trouble to come over here in May to see the English machines, and that British buyers will have placed orders in France.

One View of the Question.

A certain well-known pilot who has views on the training of military aviators, was enquiring anxiously the other day what system of training would be adopted at the Central Flying School. As he put it, "I do not mind joining the Flying Corps if I am really going to get the chance of doing some cross-country flying, but I am certainly not going to spend a four months' course learning to count cows from a balloon." This seems to put fairly concisely a rather general misgiving among aviators, but they can rest assured that those in charge at the Central Flying School know rather too much about their job to waste probationers' time in that way. Still, practical training in observation is, for an officer, if possible, ever more important than training as a pilot, for the pilot must always be under the command of the observer, and it is likely that—as under the new French system—a large proportion of the pilots will be N.C.O.'s and men. It all depends on how observation is taught whether it is wasted time or a valuable education.

Mr. Harry Harper's Illness.

His many friends among those connected with aviation will regret sincerely to hear that Mr. Harry Harper, who has collaborated with Mr. Grahame-White in a number of very readable books, and who represented the *Daily Mail* with marked ability at every important event since the late Hubert Latham's first attempt to cross the Channel, has for some months been seriously ill. Though compelled by his avocation to suit his style to the level which is commonly supposed to be required by the readers of a popular halfpenny paper, Mr. Harper's description of actual occurrences reach a high average level of accuracy, and he can, when permitted, write really well. He is a keen student of the practical side of aviation, and keeps a close record of events as they happen, so that his historical references are almost always correct. His absence from duty recently has been a distinct loss to the readers of his paper, and probably accounts for some of the errors which have occurred in it of late, errors which could only have occurred through ignorance of past and present happenings.

From South Africa.

Mr. John L. Weston, of Brandfort, O.F.S., writes that he intends shortly to open a school at Bloemfontein, where he has obtained very suitable ground. He has been doing some flying lately in Cape Colony, and the following account of one of his adventures in his own words is quite worth recording:—

"Some weeks ago I was out with one of my machines at daybreak just outside King Williamstown, in Cape Colony. I had to start parallel with one of the boundaries of the local cemetery, which is surrounded by tall trees, the starting ground and cemetery being encircled by hills. The machine rose nicely, but when level with the top of the hills it was struck by a heavy gust, with a side glide towards the middle of the cemetery as the result; within a few feet of the ground, however, it recovered, and just cleared the trees ahead. At that moment a Cape cart occupied by an old lady from a neighbouring village made its appearance from behind a rise. You can imagine what effect the advent of the strange-looking bird rising from the cemetery in the half early morning light must have had upon the good lady and her Kaffir driver, who in all probability had never even heard of an aeroplane. Anyhow, at the sight of the strange apparition the Kaffir driver jumped off the cart and bolted, and the old lady fainted in the cart and had to be taken to a house, where, I am told, she remained until next day."

Pups.

[When, at an aerodrome, one is asked "Who's the pup chasing his tail?" the question has no bearing on canine gymnastics. It probably applies to a distinguished officer in one of his Majesty's Services endeavouring to induce an aeroplane to follow an approximately straight line. Subjoined is the pilot-mechanic's view.]

(With more abject apologies to Mr. Kipling.)

What makes the pilot's 'eart to sink, what makes 'im for to swear?
It isn't gettin' up at dawn, an' freezin' in the air.
But it's everlastin' chasin' 'cross the everlastin' ground,
While the latest new-joined pupil's goin' round an' round an' round.
O the pup, O the pup, O the evolutin' pup!
With 's silly tail a-waggin' like a tripe-hound in a fit.
'E goes and gets the other side, and there 'e fetches up.
Yes! the pupil on the taxi 'e is absolutely IT.

What makes the poor propeller-swinger curse the very day
When first 'e saw an aerodrome, an' didn't keep away?
It ain't starvation wages, nor eight days' work a week,
It's the startin' up the engine for the newest pupil-freak.
O the pup, O the pup, O the cruel-careless pup!
You've sweated out, an' pulled him straight, an' troubled to explain,
You've got 'is engine bangin' like a six-shot boudoir Krupp,
An' then 'e goes an' switches off, an' out you go again.

An' when you joins the Flyin' Corps and camps on Sal'sb'ry Plain,
The same old silly pupil's at 'is silly tricks again.
'E learns "Progressive Flyin'," same as Colonel Seely said,
An' 'is pet way of doin' so 's enough to tire you dead.
O the pup! O the pup!! Oh the country-crossin' pup!!!
'E goes an' lands upon a 'ill as steep as any 'ouse.
You've got to go an' fetch 'im. Well! It's that what fills the cup,
It's that what puts the lid on, an' asphyxiates the mouse.

'E learns 'is photographin' and 'is meter-ology,
An' 'ow to spot the foreign ships without 'is goin' to sea;
'E then becomes a "member of the Royal Flyin' Corps,"
An', just as soon as 'e can get, 'e chases off to war.
O the pup! O the pup! O the used-to-be-a pup!!
You think of 'im a-flyin' in a distant foreign land,
An' keepin' on a-doin' it without a bite nor sup.
It makes you wish 'im back again, for all you 'ad to stand.

C. G. G.



Mr. Slack at Edinburgh. Left to right.—Messrs. R. Hughes (driver of I.C.S. Rover)—in cap and coat, Victor Lapeyre (mechanic), W. Perry (driver of Austin), R. Slack, W. H. Ewen, McNally (Director of Technical Instruction, Edinburgh), Odell (Sec. of I.C.S.), Ritchie (I.C.S. Manager for Scotland)—without hat.

MISCELLANEOUS ADVERTISEMENTS

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THIRD

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Programme

Saturday, Aug. 3rd, at 3.30

1. Relay Race.
2. Speed Handicap (2 heats and final).
3. Exhibition Flights.

Bank Holiday, Aug. 5th.

1.30 p.m. Exhibition Flights.
2.30 p.m. Grand Speed Handicap for London Aerodrome Trophy and 135 Sovs.
3.30 p.m. Exhibition Flights.
4.0 p.m. Cross-Country Handicap for Grahame-White Trophy and 50 Sovs.
4.45 p.m. Grand Speed Handicap (final heat).
5.15 p.m. Altitude Contest for the Hendon Trophy and 20 Sovs.
5.45 p.m. Exhibition Flights, till dusk.

Sunday Afternoon, Aug. 4th

Special Exhibition and Passenger Flights by C. Grahame-White and Competitors.

NEXT WEEK

Saturday, Aug. 10th

at 3.30

Special Exhibition Flights by well-known aviators.

Speed and Altitude Tests.

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THE AEROPLANE

1d WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, AUGUST 8, 1912. No. 6.

BY THE SAD SEA WAVES.



The end of Mr. Gates' plucky flight to Boulogne, showing how the machine landed over a sandbank within a few feet of high-water mark. It will be noticed that the sea in the background looks exactly like a photographer's screen.

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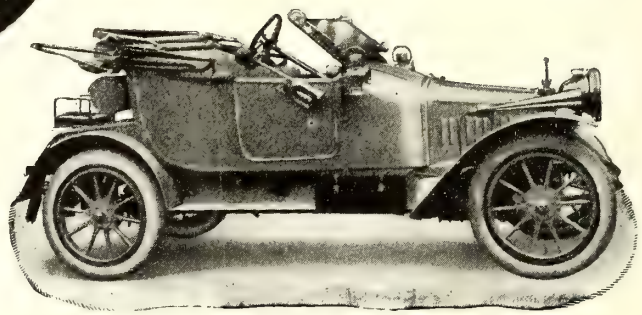
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MATTERS OF MOMENT.

THE NEXT TYPE.

It is a peculiar fact that in its ultimately developed form almost everything in this world approximates closely in general outline to its most primitive form, after passing through a process of complication and then of simplification. Thus we see the simple bicycle of to-day strongly resembling the original hobby-horse; the torpedo-bodied motor-car throwing back to Pennington's long, low machine, with little wheels and big tyres; the mastless, funnelless warship approximating to prehistoric man's dug-out; and even the physique of man himself, as we see him developed by the higher civilisation of our laboratories, factories, and many-storeyed offices, seems to be changing from the likeness of our athletic forefathers, the Celtic, Norse, Norman, Semitic, and Anglo-Saxon warrior tribes, and to be approximating to that of our remoter Simian ancestors. He is certainly less beautiful to look upon, but, on the whole, he shows encouraging signs of developing more brains.

Admitting these premises, one may, perhaps, be allowed to argue that the aeroplane will develop along similar lines, and that, after producing complicated box-kites, and weird attempts to get safety and stability by mechanical means, we shall come back to the lines of the earliest models, such as those of Wenham, Henson, and Stringfellow.

The ordinary box-kite is now dead, but not quite buried, for it survives as a school machine, for no particular reason, except that the mental inertia of the school pilots makes them loth to change. It has been proved over and over again that the tractor biplane can be made to fly as slowly and much more safely.

At the moment, judging from the machines in the Military Aeroplane Competition and those ordered for the Royal Flying Corps, the tractor biplane is the popular favourite, as the present writer pointed out it would be when Mr. Roe produced his first machine of the type at the beginning of 1911, and trained on it such fliers as Messrs. Pixton, Raynham, and Kemp. Still, the tractor biplane is not the ultimate type of aeroplane by a long way, so it may be worth while to consider what comes next.

It will be remembered that, some months ago, Brigadier-General Henderson, C.B., D.S.O., lecturing on "Military Aeroplanes," insisted on the need for a clear field of fire to the front and sides, except in the very high-speed scouts, where everything had to be sacrificed to speed, and his opinion has been confirmed since by a number of other experienced officers. Some have gone still further and have said that even for high-speed scouts, where no armament is carried, there must be no tractor screw, partly because the slip-stream is uncomfortable for the observer, partly because, in spite of every care, it throws oil over the crew, but more particularly because the whirling of the propeller does actually worry the observer and take his attention off his work. These troubles may be got over to some extent by using twin tractors, leaving a clear view in front; but they still interfere with the field of fire and of view on either side. Therefore it seems fairly clear that, for military purposes at any rate, the tractor screw will disappear.

Nevertheless, it must not be assumed that there is going to be a return to the engine-behind type. The younger generation of pilots, approaching aviation without any traditions of the past clinging to them, can see quite clearly that the proper place for the heavy weights is in front, as in a car. No one wants to drive a car from a seat in front of the bonnet for the sake of having a clear view.

Therefore it seems fairly clear that the next type to be produced is the machine with the engine in front and the propeller behind.

If one looks up almost any old book on aviation, one will find a picture of the Henson monoplane as its designer hoped to see it in its full-sized form. There is a propeller behind each wing, and the engine compartment is apparently in front, with the exhausts carried back behind the planes. Coming to more recent efforts, there is the de Pischoff "aero-automobile," which is practically the body of a car with the wings above it, and the propeller driven by a chain from a cardan shaft. The machine has been flying, and flying well, at Juvisy for the past three years, but M. de Pischoff seems to have got no further with it. The obvious objection seems to be that the centre of gravity is too low, and that the view upwards is entirely blotted out, so that the pilot cannot see what may be coming down on top of him.

Better progress in the same direction has been made in this country by Mr. Alec Ogilvie, who has transformed one of his Wright biplanes by simply putting the engine in front, and driving the usual twin propellers through a shaft running along the floor of the neat and comfortable body he has fitted on top of the lower plane. Also, Messrs. Swaby and Fenwick have produced a very successful monoplane with the engine in front and a single propeller close up at the back of the body, the tail planes being carried on booms running out on each side of the propeller. Mr. H. Barber has just completed for a well-known constructor designs for a biplane combining points found in all these, as well as a number of original details. So it may be seen that the new

type is already making its way, and considerably more is likely to be heard and seen of it ere long.

At two successive Paris Shows there appeared a machine designed by a M. Gangler. It was in an unfinished state, was badly made, and was full of faults in detail design, but the general idea was more than good. It was a monoplane with a deep body like a Nieuport; it had wings more or less on the Weiss principle, and it had two chain-driven propellers. Here we have three most important points combined, yet no one has yet made a machine of this type which flies.

The Weiss wings undoubtedly give a measure of stability. The Nieuport body makes for diminution of head-resistance. And the twin propellers have been proved over and over again to give greatly increased proficiency, as shown in the Wright and Savary. They have the further advantages that they can be of smaller diameter than when a single propeller is used for the same machine; they abolish propeller torque; and, in the event of the machine turning over or landing on its nose, the pilot is not likely to get the propeller on the back of his head; also, in the case of a dive into water, the crew have a clear way out backwards between the propellers, whereas, with a single propeller, the exit is more involved.

It has been objected that chains are heavy, and set up head-resistance. The answer is that the efficiency of the drive more than compensates for the weight, and the head-resistance is got back by the propeller working in the disturbed wake of the chain guides.

As no manufacturer is likely to go to the expense of experimenting with a machine of this type while he is busy with orders for tractor machines, the writer suggests that the Royal Aircraft Factory should set to work and see how such a machine compares in efficiency and effectiveness with the older types.

We cannot afford to stand still and wait for foreign nations to develop all the new types. Here is an excellent opportunity for us to get a little bit ahead of our rivals.

The Royal Aero Club.

At the meeting of the Committee on July 30th the following aviators' certificates were granted:—262, Private John Edmonds, R.M.L.I. (Short biplane, Naval School, Eastchurch); 263, Sydney Pickles (Bristol biplane, Bristol School, Brooklands); 264, Major John Frederick Andrews Higgins, R.F.A. (Bristol biplane, Bristol School, Brooklands); 265, Eng.-Lieut. Edward Featherstone Briggs, R.N. (Short biplane, Naval School, Eastchurch); 266, Capt. Charles Percy Nicholas, I.A (Bristol biplane, Bristol School, Brooklands); 267, Lieut. Kenlis Percival Atkinson, R.F.A. (Bristol Biplane, Bristol School, Brooklands).

The following airship pilot's certificate was granted:—12, Serjeant McGrane.

Army Manœuvres.

At the request of the War Office, the following letter has been sent by the Royal Aero Club to all aviators:—

"July 29th, 1912.

"Dear Sir,—The Army Council has called the attention of this Club to the forthcoming manœuvres which are to take place in the Eastern Counties in September next. They are strongly of the opinion that the presence of aircraft, other than such as are employed by the Military authorities, over the manœuvre area during the operations would involve not only serious inconvenience and possible danger to military aircraft and to the troops engaged, but also danger to the large number of spectators present.

"The Committee of the Royal Aero Club has, therefore, been asked to communicate with you and will be glad if you will fall in with the views of the Army Council and carefully avoid making flights over, or landing within, the Manœuvre Area, as shown on the attached skeleton map, between September 7th and 20th next inclusive.

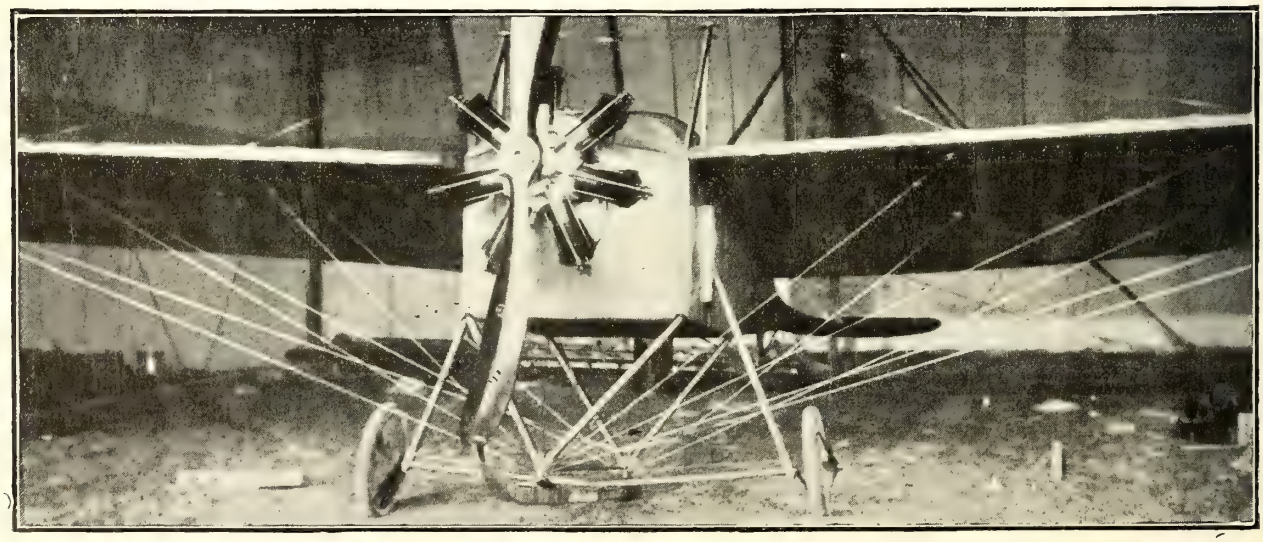
"The Committee is confident that, in the best interests of aviation as well as on patriotic grounds, you will assist the military authorities by adhering to their request, and signify your assent on the enclosed form, which will be forwarded to the Army Council.

"It need hardly be pointed out to you how undesirable it would be if recourse were made to the powers conferred by the Aerial Navigation Act, 1911.—Yours faithfully,

"C. D. Rose, Chairman."

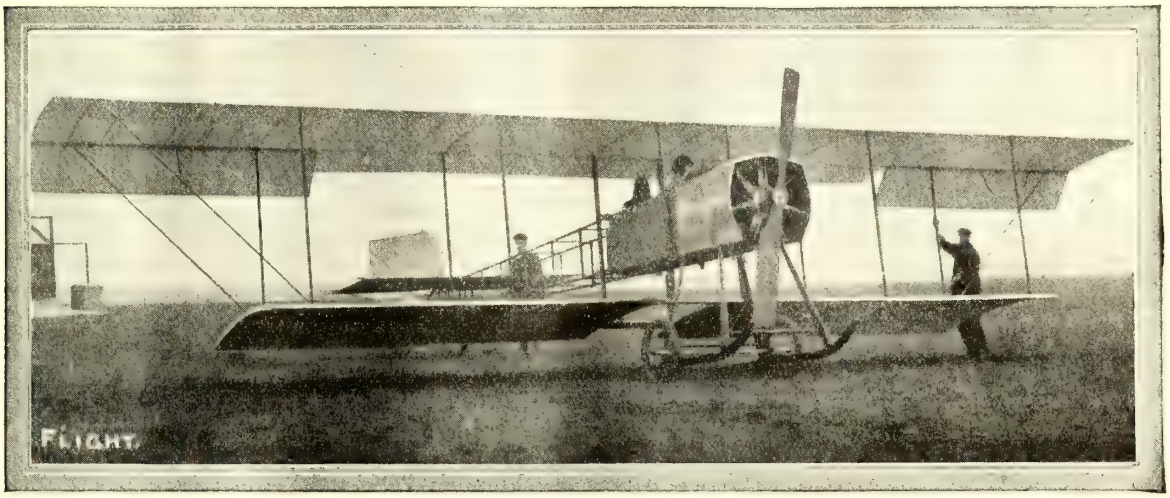
The Aeronautical Society.

Wilbur Wright Memorial Fund.—The following subscriptions have been received:—Amount previously acknowledged, £474 7s. 6d.; Griffith Brewer, Esq. (2nd donation), £10 10s.; Messrs. Handley Page, Ltd., £10 10s.; F. S. Lahm, Esq., £2; W. R. Turnbull, Esq., £1 1s.; B. E. Dunbar Kilburn, Esq., £1 1s.; John MacHaffie, Esq., 10s. 6d.; Seymour Nation, Esq., 5s. Total, £500 5s.



The Vickers Monoplane in its tent on Salisbury Plain. This machine, with a 70-h.p. Viale engine, gave a very good impression in its first test flight.

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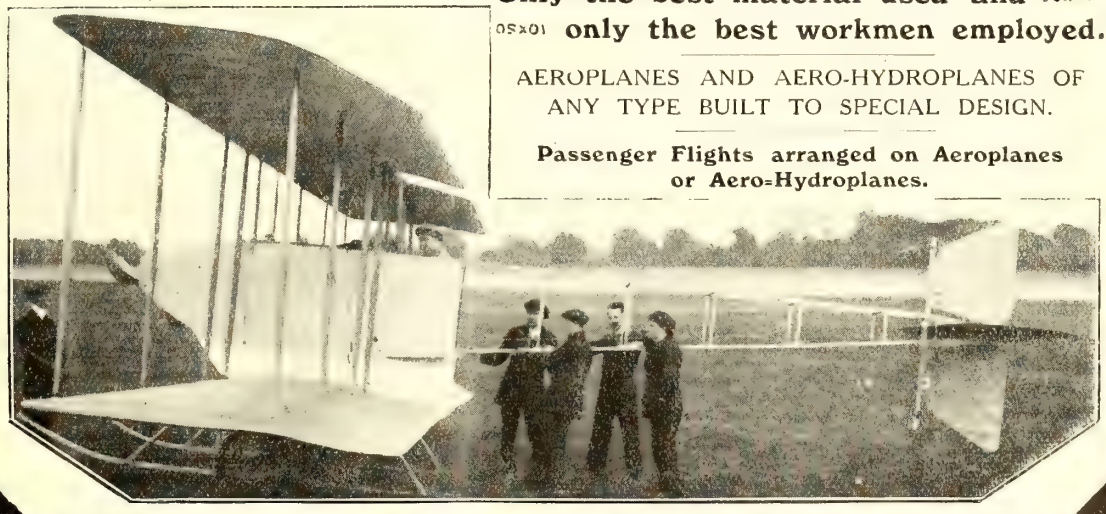
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Artillery and the Aeroplane.

BY W. E. de B. WHITTAKER

No arm or section of the Army or Navy stands by itself. However proud its annals, however efficient its present training, it is of little use alone. A war cannot be conducted by a division of cavalry, a brigade of artillery, or a squadron of torpedo-boat destroyers. The excellence of any arm comes from its perfect relation with other arms of the service. The great campaigns of history have held success for one and failure of the other, according to the homogeneity of the respective armies. Victory does not fall to the great brain or to heroic troops alone, but to the forces in which every corps, every man, knows its or his duty and does it without question. The advance of aeronautical science has provided a new force in the armies of the world. The place of the aeroplane in warfare is as definite as may be, yet how ineffably useless would a squadron of aeroplanes be if acting without support. Those who write for the lower order of the public prints speak dramatically of a foreign fleet of aeroplanes flying unopposed over the City of London, scattering bombs of small size but colossal power over St. Paul's Cathedral and the Houses of Parliament. Such an event is possible, without being in the least degree probable. Unsupported action of this sort would have no strategic value at all. The nerves of a few stockbrokers might be shaken, but the health of the nation would remain undisturbed.

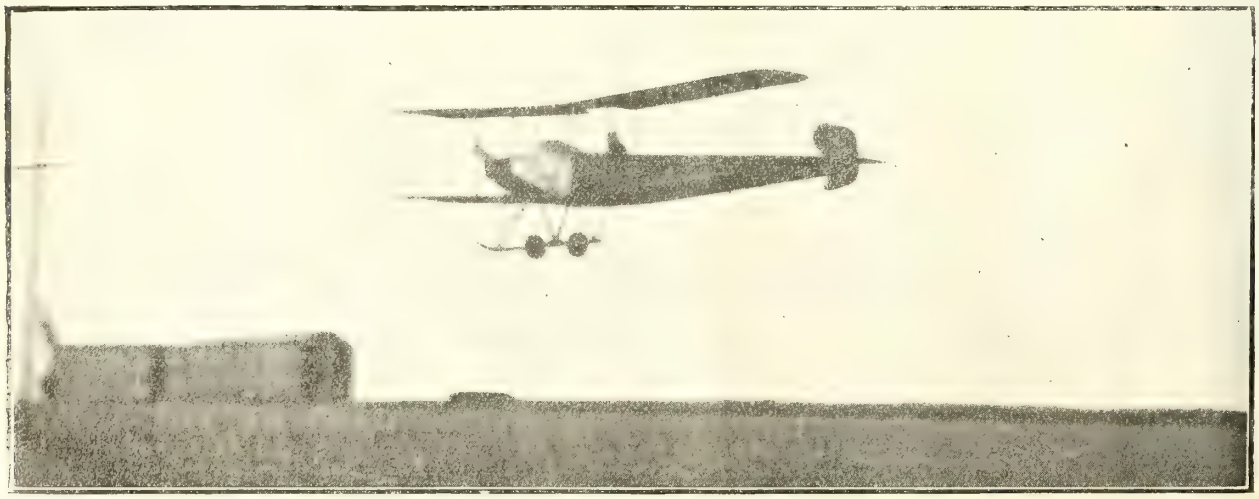
At this formative period in the history of the military aeroplane, the greatest attention should be paid to its organised relations with other branches of the King's armed services. The aeroplane does not supersede anything—it augments. The scouting duties of the cavalry are no less extensive and important than they were in the days when the contemplation of human flight was considered a virulent form of lunacy. The artillery will not cease to shell positions because the uniformed aviator plays aerial quoits, with bombs for rings and human beings as objective. And so on. As in a game of chess, each piece has its value and its due place in the scheme of things.

In France and to some extent in England the connection between the aeroplane and artillery is being resolved by experiment. It is obvious that the aeroplane can aid greatly in fire control so soon as some definite scheme is formed. That this view is held officially is shown in the recently published "Field Artillery Training (Provisional), 1912," in which, on page 232, appears the following paragraph:—

"The task of the artillery is likely to be much facilitated in future by the use of aircraft, by means of which targets may be located and the accuracy or otherwise of the artillery fire checked. The divisional artillery commander, therefore, should point out to the divisional commander, whenever necessary, the directions in which aircraft can usefully be employed in obtaining information which would be of value to the artillery."

In action it is desirable as far as possible for the artillery to be concealed. The fewer points given freely to the enemy the greater the advantage. The trajectory, flat though it is, of modern guns makes it possible for batteries of artillery to be placed quite out of sight of the enemy, and yet to do as much damage as if they were in the open. As they cannot be seen by the enemy, neither can those at the gun positions see the enemy—the target is hidden. Thus it is necessary to have an observation point, possibly some distance from the guns, from which ranges can be found and the fire controlled. Communication between this point and the guns is usually maintained by field telephone. Ranges and direction are given with as much accuracy as possible. If the ground allows of it, the enemy's guns will also be hidden, as also may be a large number of the troops. This complicates matters as regards range-finding, and the goddess Chance has more than a fair share in the ruling of the day. The degree of accuracy obtained under adverse conditions would surprise the layman; but, even so, it is not enough to satisfy the scientific artilleryman. Many times he has no means of judging the effect of the fire. He can only presume its success if any movement of retirement is to be observed in the enemy's lines. The gunner therefore welcomes anything which will increase the positive accuracy of his battery. The aeroplane, and to a lesser degree the dirigible (its great size rendering it peculiarly vulnerable), supplies the want. The aeroplane, with pilot and observer on board, can rise to a sufficient height to reveal the entire extent and nature of the enemy's position. If the enemy lacks aircraft, then the opposition aeroplane can fly directly above the lines, but this is unlikely to occur under modern conditions. By careful dispositions the enemy can frequently draw the greater mass of fire on to an unimportant point while an extended movement is being made elsewhere. The aerial scout renders this almost impossible.

By the use of an easily designed instrument, if not by existing instruments, the range can be taken with perfect accuracy from a height of well over 2,000 ft. The effect of shells and their proximity to the objective can be gauged at once, and the results signalled to the divisional artillery commander. In the experiments carried out at Mailly Camp in France and on Salisbury Plain in this country the transmission of reports from



Major Brooke-Popham on the Army Avro landing from his flight to show the course for the tests on Thursday of last week on Salisbury Plain.

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the aeroplanes to the guns was the principal difficulty. By the time the message reached the fire control position the enemy's dispositions had altered completely. The most successful method employed was the dropping of different coloured objects, one colour signifying "fell short" and another "fell beyond," and thus the battery commanders were able by a process of elimination to find the range. This was, of course, in France. I have no information in detail as to the English experiments. Signalling by means of puffs of smoke or by semaphore are equally unreliable. The key to the whole problem is the wireless telegraph. Messages of considerable length have been accurately transmitted to the ground from an aeroplane in flight, and on a few occasions answers have been received on the aeroplane itself. The passage of a few months ought to see a great development in this direction.

The officer commanding artillery can himself be taken up as passenger on an aeroplane, and he is thus able to judge for himself. On active service it is probable that the observer will be a gunner subaltern. The risks are too great for an officer of high rank to incur, except on rare occasions.

It is probable that a number of aeroplanes will be permanently attached to the artillery, and will undertake no other work. In France it has been found that the increase of efficiency, as experience of this sort of work extends, is very great. Therefore it should be to some extent a specialised service, and not merely part of the ordinary training of the military aviator in general.

Though in times of peace it is possible to do many things with aeroplanes, it must be remembered that aerial movements, common when there is no war, will in times of trouble be greatly restricted. Those who write most optimistically of the possibilities of aviation are a little inclined to forget the sphere of action of one army's aeroplanes overlaps that of the opposing force—in fact, is largely the same. Aeroplanes will in many cases be so busily occupied avoiding one another, and perhaps fighting, that there will be little time for observation. It is not probable that an army will patiently allow opposition aeroplanes to fly above their lines undisturbed by earthly cares. A great preponderance on the one side, so long as the other is not underequipped with machines, will not spell any great advantage, as it is simple for an important area to become overcrowded with aeroplanes. There is nothing placid in warfare save death, and something more than mere coolness is required for the work of observation.

As an aid to artillery in the siege of a fortified place, the aeroplane is invaluable. It can first find the objective—the vulnerable point in the defences—and can then direct concentrated fire on the spot. The armament of the place can be discovered to a large extent, and the siege much simplified. In siege operations it is probable that the officer commanding artillery would himself make a flight over the defences. Information at first hand is of the greatest value. A message invariably either gains or loses in transmission,

Whatever view one may take of the future of aviation, there is no question of the great change the aeroplane brings to artillery—the dark does not become light, but all is more clearly defined—a mist instead of an opaque cloud.

The Royal Flying Corps.

From the *London Gazette* :—

War Office, July 26th.

Special Reserve of Officers.—Establishments.

Royal Flying Corps (Military Wing).—T. Hubbard, E. Hotchkiss, H. Cutler, and D. Young to be 2nd Lieuts. (on probation) July 27.

French Military Aviation.

M. Bathiat has, during the last fortnight, been testing three Sommer monoplanes which are to be delivered to the Army.

The military aviation centre at Lyon is now in a state of activity, Captain-aviator Carlin making extended flights with and without passengers every suitable day. Lieutenant-aviators Mercier, Rey, and Hautschamps are in training.

It is rumoured that Commandant Felix (O.C. Aviation Centre, Etampes) is to be appointed to the command of the Moroccan Aviation Section vice Captain Clavenad.

Lieutenant-aviators Battini and Varcin have returned on Maurice-Farman biplanes, after an absence of six months, to Saint Cyr. During this period they have been attached to Mailly camp, and have flown over 20,000 kilometres and have carried over 600 officer-observers as passengers.

Officer-aviators are at the moment expressing with uncommendable freedom their dislike of flying two-seated or multi-seated machines. They object, they say, to being considered as "taxidrivers," though one would imagine the comparative treatment to differ slightly. The question is becoming critical in view of the forthcoming manœuvres in Poitou. Officers in the French Service and also in that of his Britannic Majesty would do well to remember that the aviation sections of modern armies are not formed for the purpose of providing aerial amusements for indigent subalterns.—W. E. de B. W.

French Naval Aviation.

Enseigne de Vaisseau Delage has been flying the Nieuport hydro-monoplane during the naval manœuvres, always accompanied by a passenger, and so far without mishap. He has been personally complimented by Admiral Boué de Lapeyrère.

On July 29th, during manœuvres, Lieutenant de Vaisseau Cayla made several flights of reconnaissance over the enemy's fleet, starting from, and returning to, the water in the vicinity of the aviation mother ship *Foudre*. At the same time Lieutenant de Vaisseau Fournier, who last week had an accident at Buc, flew a Henry Farman hydro-aeroplane. The Nieuport was also out, as was a Paulhan-Curtiss biplane piloted by Mesguich. This latter flight was, of course, unofficial, though the officers of high rank present were deeply interested.—W. E. de B. W.

German Military Aeronautics.

The dirigible *Z.3*. (Zeppelin) recently delivered to the German Army has not been idle since its reception. On July 28th it left Metz and travelled to the north of Thionville, returning before midday. At 6.30 p.m. it made another journey, this time to Amanvilliers and back. The next morning it left its hangar at 6.50 a.m. At 7.15 a.m. it passed over Saarbruck. After flying farther to the N.E., it returned at a late hour of the day to its station—W. E. de B. W.

Austrian Military Aviation.

It is forbidden in the Emperor's Service for officers to marry unless they themselves have a certain specified income apart from their pay—I believe the minimum sum is about 1,200 marks per annum. It is also required that the bride shall have a *dot* of £2,500. Lieutenant-aviator von Blaschke, who has flown brilliantly on the Lohner biplane, desired to marry, but was unable to do so as his wife was without sufficient means. This fact was brought before his Imperial Majesty, who was graciously pleased to provide the bride's dowry from his privy purse, and so all the world is happy.—W. E. de B. W.

Belgian Military Aviation.

The following officers of the Belgian Army are in possession of their pilots certificates. The year in which they received their aviation training is prefixed, the aerodrome at which trained is added in brackets to each name.

1910. Artillery, Lieutenants Meutens (Saint-Job) and Sarteel (Saint-Job). Engineers, Lieutenant Nélis (Kiewit).

1911. Artillery, Lieutenant Rochet (Brasschaet). Cavalry, Lieutenants Dhanis (Kiewit), and Bronne (Kiewit). Infantry, Lieutenants Soumoy (Brasschaet), and Stellingwerth (Genck). Engineers, Lieutenant Lebon (Kiewit), and Lieutenant Moulins (Brasschaet).

1912. Infantry, Lieutenant Van Loo (Brasschaet). Engineers, Lieutenant Dechamps (Brasschaet). Twelve officers in all.—W. E. de B. W.

Russian Military Aviation.

A military aeroplane competition is to be held at St. Petersburg from August 10th to September 20th. All machines entered have to be entirely of Russian construction. Each is to be capable of carrying a passenger in addition to the pilot, instruments, oil and petrol, for a three hours' flight. Each should be capable of rising to a height of 500 metres in fifteen minutes and maintain a speed in normal flight of 80 kilometres an hour. A flight of an hour and a half in duration must be made. Three prizes are offered of 30,000, 15,000, and 10,000 roubles.—W. E. de B. W.

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Italian Military Aviation.

The Baron Leonido da Zara has purchased two Hanriot monoplanes for presentation to the Italian Army. M. Marcel Hanriot leaves this week for Italy in order to deliver the machines to the Government.—W. E. de B. W.

The first aeroplane given to the Italian State was baptized, and did its first public flight in the presence of the military authorities, on July 24th. Needless to say, it was that offered by the city of Milan, and bore the city's name.

M. Paulhan is at present engaging the Government's attention with his hydro-aeroplane the *Triad*, and M. Blériot has been at Turin and other cities forming a company with the Manisseros, *père* and *fils*, in view of the Military Trials.—T. S. Harvey.

A Pretty Problem in Armament.

The Royal Flying Corps has become possessed of a quick-firer light enough to use on an aeroplane. It also possesses a number of aeroplanes with tractor screws, and has a number more on order. It is desired to use the said gun on the said aeroplanes. Problem.—Where to put it and how to use it? (a) It may be used exclusively as a stern-chaser, in which case the gunner must sit aft of the pilot and his seat must be swivelled so that he can face aft. (b) It may be used as a bow gun, and then the tractor trouble arises. Here then is work for the most scientific minds in the Royal Aircraft Factory.

It must obviously be made possible for the gun to fire through the tractor without hitting the blades. Let us assume that the gun fires 400 shells per minute. Also that the engine runs at 1,200 r.p.m.—since the official mind still seems to prefer a Gnôme driving direct to a stationary engine doing 1,600 r.p.m. and driving a geared-down screw at 800, which would simplify matters. Now, at 1,200 r.p.m. one blade or other of a two-bladed propeller passes the vertical position—which we may call "12 o'clock"—2,400 times per minute. Also, firing straight ahead, it would only be safe to fire between the points "10 o'clock" and "2 o'clock" of the circle, and even that would not give too wide an angle of fire. It would thus become necessary to connect the firing mechanism of the gun to the engine by a 6 to 1 gear, with a special cut-off mechanism which prevents the gun from firing if in sighting it passes a certain angle which would allow the shell to hit the tractor.

The working out of the mechanism would be quite a nice problem, especially when complicated by the possible effects on the trajectory of the shell of the slip-stream of the tractor, which may or may not have a strong rotary tendency, and may vary from 50 per cent. to 20 per cent. of the flying speed of the machine.

Perhaps after all it might be simpler to redesign the machine itself by putting the propeller behind and allowing a perfectly clear field of vision in all directions in front.

Another Aviatrice.

Madame Pallier, who has been learning to fly an Astra biplane at Villacoublay, rose on August 3rd at six in the evening with the expressed intention of passing the tests for her pilot's certificate. With the sweet unreasonableness of womankind, instead of inscribing figures of eight in the upper atmosphere over a restricted area, she flew tranquilly towards Paris, the lodestar of femininity, where she circled the Eiffel Tower and the Chamber of Deputies. She glided serenely over the Place de la Concorde, and then, tired of novelty, returned to Villacoublay and the dismayed observers. The necessary tests were then passed with the automatic precision imputed by legend to man. To copy the excellent courtesy of *L'Aero*, we felicitate the Astra company and France in possessing so precious a pilot.

Mr. Gates' Adventures.

Mr. Richard Gates, the able manager of the London Aerodrome, had quite an exciting time bringing the new Farman biplane over for Mr. Grahame-White. The machine, which is of the "Circuit d'Anjou" type, with an 80 h.p. Gnôme, is intended to be used either as a hydro-aeroplane or in the ordinary way. On July 27th Mr. Gates, with Mr. Louis Noel as passenger, left Buc for Boulogne, the floats being sent on by train. After covering 69 miles in the first hour the magneto shook loose (apparently a habit with Gnômes), so they came down at St. Thibaut, in Picardy. Soon after they landed the big storm came on, and they spent three days and nights holding the machine down in a field, assisted by six French peasants.

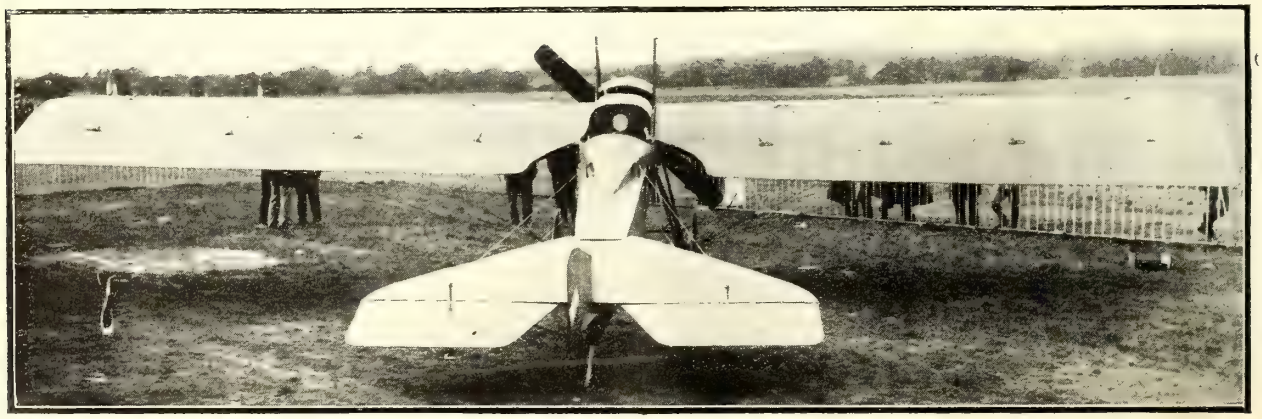
On Tuesday night they tried to get away from the field in which they had landed, which measured 200 yards by 80. Just as they were rising the compass fell off, so down they came again, and by the time it was fixed it was dark.

On Wednesday at 3.45 a.m. they got off again, ran into a fog, turned back, found their field and landed again. Soon after they started again, and 20 miles farther on the engine stopped for lack of petrol, with 30 litres still in the tank, owing to the petrol only reaching the pipe when the machine was tail down. This time they landed by flying between two trees, both of which touched the wings, and brushed a third with the chassis, eventually landing on top of a hill. After filling up they got to Boulogne, the last 60 miles against the wind taking 1½ hours. The tide was up when they got there, so to get on to the strip of beach left, they had to dive over a cliff and "pancake" badly for the last bit.

There the floats were fitted, and after more waiting for weather they started on Saturday morning for England. The machine quite refused to lift, and after "taxi-ing about the bay"—as Mr. Gates said—for half an hour, a wave stopped the engine and they were quite helpless. After a long wait a boat put out to fetch them, "not," to quote Mr. Gates, "an ordinary common or garden tug, but one of those jolly great coal steamers." This proceeded to come alongside, and smashed an aileron in doing so. Then the crew threw great cables at them, one of which hit Mr. Gates on the head and nearly knocked him out of his seat. After which, in Mr. Gates' words, "Not knowing French, I swore at Noel, and he swore at them." However, they were towed into Boulogne Harbour against their will and had to pay another boat to tow them out. Then Mr. Gates had to come back to Hendon, so he crossed by boat, and left Mr. Noel to fly across, which he did at 6 a.m. on Sunday morning, landing at Eastchurch at 7 a.m.

The performance was a very fine one, for Mr. Gates does not pretend to be a cross-country flier. Nevertheless, having laid a compass course from Buc to Boulogne, he found himself at St. Thibaut, only one mile off the correct line.

Mr. Gates had no intention of making the flight when he went to France, so took no aviator's kit with him, consequently he is now mourning the loss of his best frock-overcoat and patent leather boots, irretrievably ruined by petrol, oil, hail, rain, wind, and finally salt water. Evidently Mr. Gates' business calls have lost us a fine cross-country flier.



The British-built Deperdussin with 100-h.p. engine. The streamlining aft of the pilot's seat should be noted.

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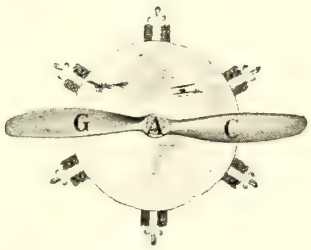
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	" " "	FINAL	A.B.C. FIRST
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The Military Aeroplane Competition.



A general view of the main range of temporary sheds for the competing machines.

The long-looked-for aeroplane competition is now in full swing, and a very fine performance it is likely to be, judging by the opening day, albeit the programme then seemed a trifle chaotic, owing to the constructors not having been warned before they arrived as to what was expected of them in the way of preliminary tests. Still, everything worked with beautiful smoothness, everyone seemed in a good temper—even those who suffered from the cruellest hard luck—and all the official work was done with that tact and charm of manner which one would expect from soldiers off duty, but somehow seemed almost out of place considering that the camp was under military control, and that very few of the constructors, pilots, or mechanics were used to discipline of any sort.

The machines which had actually arrived up to Wednesday midnight, the limit allowed by regulation, were the two Hanriots, the Vickers, one Blériot, the Avro, the Aerial Wheel—only partially finished and not expected to fly—one Coventry Ordnance, the Martin-Handasyde, the four Bristols—which, of course, had been in their own shed for a week—the Maurice Farman, the Flanders—minus an engine—the Mersey, the Cody, the two British Deperdussins, and one French Deperdussin.

Their ways of getting there were varied and adventurous. To the indefatigable Mr. Cody belongs the honour of being the only competitor to arrive by air, as was noted in The Aeroplane last week.

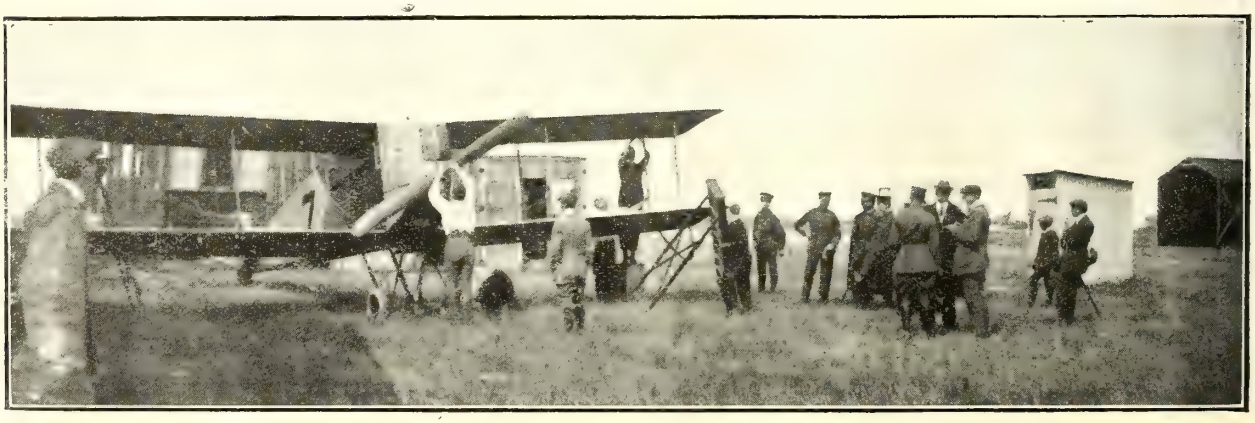
Mr. MacDonald on the Vickers made a gallant attempt to do likewise. He and Mr. Challenger pluckily started from Bognor, where they had been quietly tuning up, on the Wednesday morning, and immediately ran into rain storms. They intended to follow the coast to Southampton Water and then strike inland. Unfortunately they mistook Southampton Water for a mere creek—owing to their height and the mist—and so flew straight on till their time told them they must be too far west, so they came down and found themselves at Brockenhurst in the New Forest. Thence they telephoned for help and instructions; a car was sent to them, the machine was hitched to the car tail first, and at thirty miles an hour on its own wheels it was driven forty miles through the dark, arriving just before midnight. Mr. Macdonald told me next day that at times during their flight he could not see his own propeller. As an example of genuine pluck and energy their performance takes a lot of beating, and it is satisfactory to know that bar accidents the Vickers stands a very good chance of being among the prize-winners, judged solely on speed and evident flying ability.

The record for quick delivery certainly goes to M. Bielovucic's Hanriot, for he had an ambition to fly it to the Plain, and so it remained at Reims till the last moment. He was actually flying it on Sunday, but it was then packed up and left Reims on Monday at 11 p.m. Mr. Ducrocq met it at Folkestone, and worried it through, so that it arrived at Amesbury at 3 p.m. on Tuesday, taking 16 hours for the whole journey, including seven railway changes between Folkestone and Amesbury. Mr. Sippe's machine, which left over a week before, only came in at 9 a.m. on Wednesday, having taken nine days to come via Dieppe and Newhaven.

The London, Brighton, and South Coast Railway also messed up the delivery of the side-by-side Blériot badly, for it was kept hanging about for nearly a week at Newhaven waiting for an apparently non-existent truck. Then M. Chéreau got word that it was actually due at Salisbury in a few hours, and chartered a special train to bring it to Amesbury after the last ordinary train had gone. Off he went to meet it, only to find that all the "special" had brought was a pair of wings. It speaks well for M. Chéreau's self-control that no murder was done, but it worked out all right in the end, as will be seen later on. Further, the precious railway company completely lost a big case full of tools and spare parts.

The second Coventry Ordnance machine, with the 100 h.p. Chenu, came direct from the works without incident, but the other was sent by Pickford's, towed by a traction engine which started blowing out boiler tubes. These were patched up somehow, and then the driver took it into his head to go via Winchester and Salisbury instead of direct through Andover, so that it turned up after midday on Wednesday, the case looking as if it had seen some very rough times.

The French Bréguet was to have been flown over by Mr. Moorhouse, but, like the Hanriot, it was stopped by bad weather, only its dispatch by rail was left till it was too late to send it



Assembling in record time:—Putting the finishing touches to the Avro. In the centre of the group of three on the right is Mr. Mervyn O'Gorman, one of the judges.

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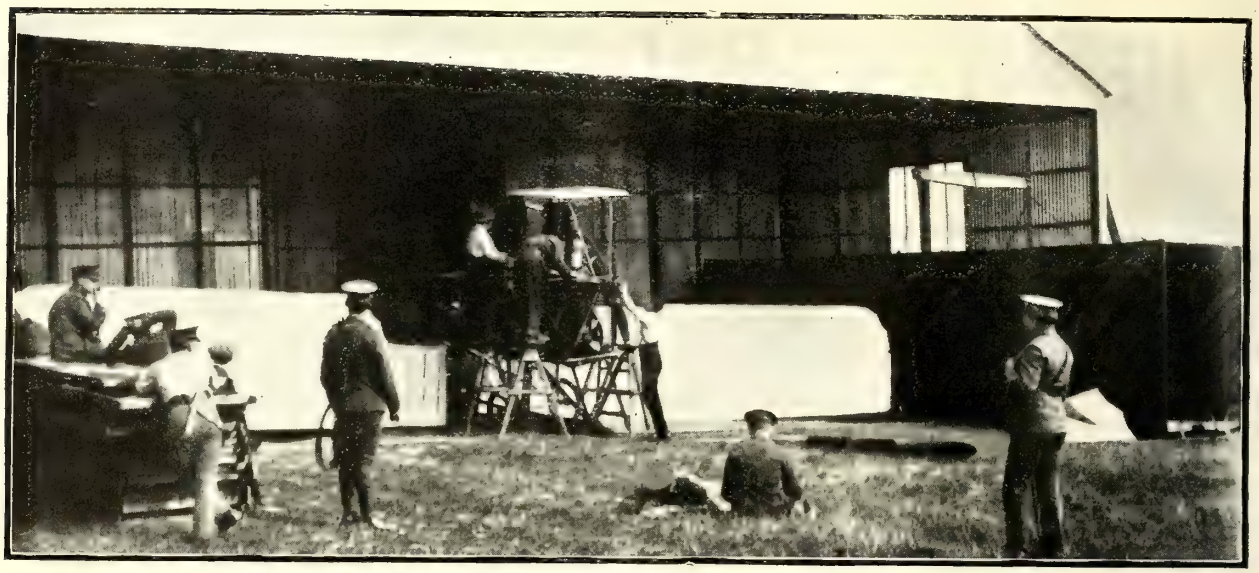
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Mr. Cody hard at work assembling his machine.

at all. The British Bréguet started in good time to come down by road in a packing case, but I heard that its motor lorry had broken down on the way, which was very hard luck, seeing that the French machine was out of it also.

Another victim of bad luck was the Flanders machine. It is one of the handsomest biplanes I have ever seen, and seemed to have an excellent chance of winning something big. It was to be fitted with the first of the 120 h.p. A. B. C. engines, and that firm worked day and night to get the motor finished in time. At the last moment it was found that there was a flaw in the cam-shaft, and the making of a new one took just long enough to disqualify the machine. However, Mr. Flanders asked to be allowed to go through the trials under official observation, but not in competition, to which the Judges' Committee apparently consented.

The Judges' Committee.

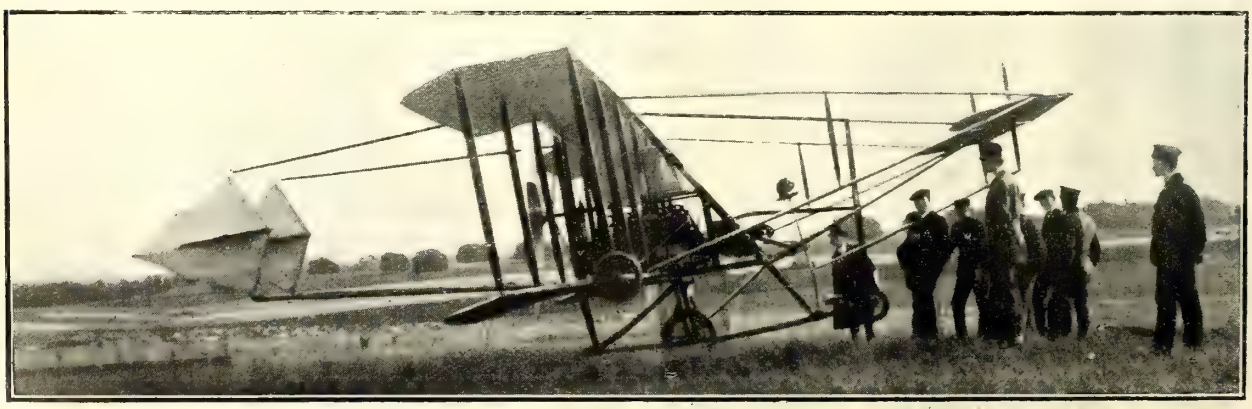
The composition of the Judges' Committee was only announced on Wednesday night, and it would be difficult to suggest a better one. The Chairman is Brigadier-General David Henderson, C.B., D.S.O., the other members being Captain Godfrey Paine, R.N., Commandant Central Flying School, Major Sykes, Commandant Military Wing, Royal Flying Corps, and Mr. Mervyn O'Gorman, Superintendent, Royal Aircraft Factory. The only possible improvement would have been perhaps the addition of two of the officers who have done the most actual flying, one a sailor and one a soldier. Still, as lookers-on see most of the game, and as three of the four judges are certificated aviators—albeit pilots of box-kites—their judgment is fairly certain to be sound, and their names are absolute guarantees that it will be fair and free from prejudice.

At the very beginning they showed how willing they are to give everyone a fair chance, for they at once admitted the second Blériot and the second Coventry Ordnance machine when it was proved that their late arrival was not due to late dispatch, but solely to accidents of transport. At the same time they showed no disposition to be unnecessarily lenient, for when the Borel firm wired that their machine could not be got ready till the 3rd, and so could not arrive till the 5th, they promptly refused to accept it. On the whole, then, one may confidently expect awards which will be quite fair, and will give satisfaction to everyone except the chronic grumblers.

The Opening Day.

Thursday was the opening day, in two ways, for during the morning instructions were given to the competitors that they were to open their cases, get their machines out, assemble them against time, and fly a circuit straight away. An officer of the Royal Flying Corps was told off as an observer for each machine to take the times, and see fair play generally, and I cannot speak too highly of the way each and all of them did their work. By the time the job was done the constructor and the observer seemed to be friends for life, each observer taking the keenest sporting interest in the progress "his" machine was making.

This phase of the competition took most of the constructors absolutely by surprise, for the general idea seemed to be that they were simply to deliver the machines on Wednesday, and thereafter were to have a few days for general tuning up and adjustment, submitting their machines for the quick-assembling and other tests at any time on giving due notice to the Judges' Committee. Consequently, when I arrived about midday, conducted with speed and comfort on a large Daimler by Mr. Mervyn O'Gorman, to whom be much thanks for relief from a tedious walk from Amesbury Station, where vehicles are not, I found everyone wondering what was really going to happen when they tried to take their machines straight up without adjustment and do a circuit in the gale which was then blowing. Incidentally, on the way we passed the Pickford engine, evidently suffering badly internally, and taking up most of the road



Mr. Cody's machine ready to fly. The white dots on the left are the sheep which caused Mr. Valentine's accident.

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with the No. 10 Coventry Ordnance and its case, and so were able to relieve the anxiety of Messrs. Howard Wright and Manning, who had lost all trace of it for a day or so.

Thereafter to lunch at the aviators' camp with Mr. Howard Wright. The camp is run by a contractor and not by the Army, and consequently the feeding tent is known as the contractor's mess. It is. It may be ill looking a gift horse in the mouth, but one cannot help tasting a gift lunch in the mouth, and my hosts were perhaps more vehement in their expressions than I. Opinions seemed to be divided as to whether it were better to compel the officer in charge of camps by means of peaceful picketting to consume the contractor's mess daily, or to seize the contractor and his chief accomplices and choke them with their own fodder, in the belief that any change could only be for the better. Also it is an offence before High Heaven that the common flat-footed waiter of the suburban garden party should be allowed to parade himself, greasy dress suit and all, in the primeval vastnesses of Salisbury Plain. Why not neat white steward's jackets?

The Assembling Tests.

However, to continue. At two o'clock the unpacking of the machines started. Some of the more wiley of the constructors had already had their machines out of the cases, had run their engines to make sure that all was well, and had put them back with everything nice and handy for re-assembling. Others, especially the late arrivals, had left the machines in the cases as they arrived, expecting them to be inspected before anything else was done. Still, as the observers arrived for each machine, the crews fell to with a will and some splendid performances were put up. The following are the unofficial times taken to bring each out of its case and make it ready to fly. The pilot's name is also given, and the number of men in the assembling crew :—

1.—Avro biplane (Lieut. Parke, R.N.) 14½ mins. (6 men).
2.—Hanriot mono. (Bielovucic) 14 mins. 43 secs. (7 men).
3.—Bristol mono. (Busteed) 17½ mins. (5 men).
4.—Hanriot mono. (Sippe) 22 mins. 58 secs. (7 men).
5.—Bristol mono. (Valentine) 26 mins. 30 secs. (4 men).
5 (*a*).—Flanders biplane (Raynham) 40 mins. (5 men)—not in competition.
6.—Vickers mono. (Macdonald) 53 mins. (5 men).
7.—Bristol biplane (Pixton) 54 mins. 15 secs. (4 men).
8.—Blériot mono. (Perryon) 59 mins. 57 secs. (4 men), tandem type.
9.—Martin-Handasyde mono. (Bell) 1 hr. 33 mins. (6 men).
10.—Bristol biplane (England) 1 hr. 32 mins. (4 men).
11.—Blériot mono. (Perryon) 1 hr. 27 mins. (4 men)—side by side type
12.—Cody biplane (Cody) 1 hr. 34 mins. (5 men).
13.—Coventry Ordnance (Sopwith) 1 hr. 51 mins. (6 men)—100 h.p. Gnôme.
14.—Deperdussin (Prévost) 1 hr. 56 min. (6 men).
15.—Deperdussin (Lieutenant Porte, R.N.), 2 hrs. (6 men).
16.—Mersey mono. (Fenwick) 4 hrs. 25 mins. (3 men).
17.—Maurice Farman biplane (Verrier) 9 hrs. 29 mins. (6 men).

The assembling of the machines was not without its humours. In one case a particularly smart gunner officer, faultlessly arrayed in a beautifully-cut field-service kit, was standing chatting with the constructor and pilot of the machine he was observing, which had just been finished in very quick time, when an enthusiastic Press photographer rushed up to him and said, "I say! Are you the sentry on this machine?"

In another case, by way of greeting an observer reclining gracefully in the front of a shed was asked how he liked his work, when the constructor chipped in with: "Oh! He's quite comfortable. He's got a job for life. We weren't expecting this quick-change test."

A third observer did not approve at all of the machine he was observing, because in his opinion no one could possibly design a safe machine properly who, on such an occasion, had not the forethought to provide any entertainment for the observer, forethought being exceedingly necessary in the design of aeroplanes, to guard against accidents.

Naturally, the honours of that day went to the Avro, for not only was it assembled in record time, which for a biplane was quite unexpected, but the time was done by a crew of which two members at least had never seen the machine till it arrived on the ground, and they had not had any practice in assembling this particular machine, which was of an absolutely new type. Then when the Judges' Committee decided that the wind permitted flying, Major Brooke-Popham went out first to try the air and to show the course for the test circuit on one of the Army Avros, and, as the machines were sent off in the order of their speed in assembling, Lieutenant Parke, R.N., had the honour of making the first official flight of the competition on the Avro. It is worthy of note, by those who criticise Avro work, that this machine flown by Major Brooke-Popham has done over 1,000 miles in the last month without anything giving way, and that the other, at Farnborough, has done between 1,100 and 1,200 miles in the same time, these being the first two machines delivered to the Army out of the last batch of orders.

M. Bielovucic's Hanriot ran the Avro very close on time in assembling, and Mr. Sippe's crew only lost time through one of the men having to ask for assistance in fastening the upper wires to the *cabane*.

The first Bristol went together very prettily, the crew, which had been trained by Mr. Busteed, working like a machine under his directions. Mr. Valentine's crew were less well trained, and time was lost through one of the quick-detachable cable bolts not being bedded home, so that when the observer noticed it other wires had to be loosened in order to get it in its place properly. Still, their time was quite good.

The Vickers was quite quickly done, considering that here again the crew had not been trained for speed, and that the machine had no special quick-attachment gadgets about it, being, in fact, an ordinary two-seater monoplane intended for the Brooklands school.

The Bristol biplanes are both big machines, and had to be taken into many pieces to get into their cases, so their crews were really not long over their work.

The Blériots, having been carefully packed for transport from France, naturally took more getting together than if specially



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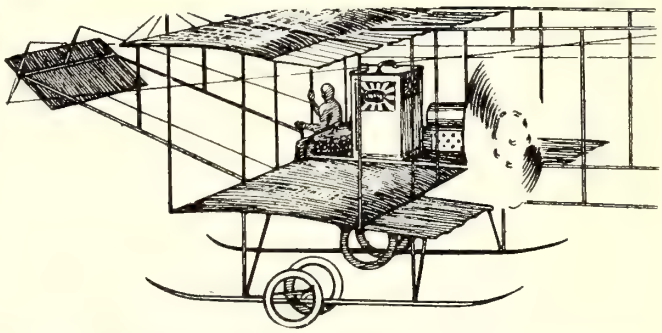
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packed with the idea of quick assembling, and they had scratch crews who were not accustomed to working together, so they did exceedingly well.

The Martin-Handasyde crew also did well, for the machine is a very big one and so needs a good deal of work. The firm had very bad luck, for, as soon as the Chenu engine started, the magneto coupling went wrong and the engine refused to fire properly. This had already occurred twice before, but each time in a different place, and when I left late at night, the energetic partners were hard at work arranging a new driving gear for the magneto. Naturally they and Mr. Bell were terribly disappointed, for the machine would have made a fine show in the nasty wind which was blowing.

Mr. Cody's performance was thoroughly worthy of him, for, in order to get his machine into the case, he had to take it all to pieces, even the uprights between the planes being jointed in the middle. Nevertheless, he and his son Vivian, with a couple of other men, had the machine ready before four p.m., although, as Mr. Cody showed by flying to the Plain, the machine is intended to do its journeys by air, not by road or rail. Thereafter, Mr. Cody besieged the Judges' Committee with requests to be allowed to fly, which he could have done, although it would have been dangerous for others. However, the judges wisely decided that they would only allow flying when the weather was suitable for the worst aviator present, and not for the best. Mr. Cody is at a further disadvantage by having a shed which only accommodates the tail of a machine and the wings, and is not deep enough for a front elevator as well, so he has to unship his rudders every time he comes in.

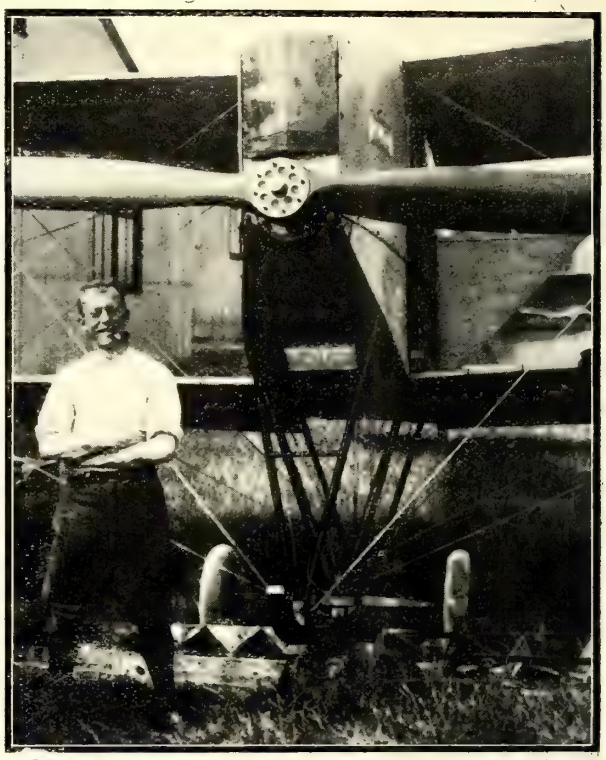
The Coventry Ordnance, with the Gnôme, went together very well, its time being accounted for by the fact that it had been very carefully packed for a long rough journey, and had only arrived a few minutes before the test began, so there was no opportunity to take it out of its case and prepare it for a quick job. In fact, it took best part of half an hour simply to get it out of the case. The one with the Chenu engine had arrived long before, and had been taken out of its case to run the engine. When the engine started it sheared its magneto coupling, just as the Martin-Handasyde did, and when I arrived Mr. Manning was just starting for Salisbury for new coupling gear which had to be fitted after the other machine was assembled, so the crew looked like being busy.

The Deperdussins were also packed for a rough journey, and Lieutenant Porte preferred to lose marks over the quick assembling rather than take any risks of the machines going wrong in their test flight, wherein he showed his wisdom. Admiral Fremantle, the chairman of the company, came down from town with Colonel Dickenson during the morning, and watched the whole process of assembling with the greatest care.

The Mersey people were also taken by surprise in being asked to assemble in a hurry and fly right away, but Messrs. Fenwick and Swaby, assisted only by young Buchanan—who used to



The men who made the Deperdussins.—On left, Lieut. Porte, R.N.; in centre, Mr. Koolhoven (works manager); and on right, Mr. Santoni.



The Avro and its pilot, when the assembling was just finished.

be known as "Paulhan's mascot"—put the whole machine together themselves. The machine certainly looked a trifle roughly finished, but it seemed strong, and is a wonderfully creditable piece of work considering that the two partners did it all themselves.

The Maurice Farman had to be reduced almost to its elements in order to get it into the regulation case, for, as Mr. Greswell remarked to me, it is not intended to travel in a box. When a Maurice Farman wants to get from one place to another it flies. There are undoubtedly good reasons for carrying military aeroplanes in boxes on wheels, but undoubtedly there is room also in the Service for the bigger type, such as the Cody and Maurice Farman, which, in time of war, travel by air only, and are never packed up except when a new machine is being sent abroad or to the other end of the country. So in considering such machines for military purposes one must neglect the question of packing and estimate their value from their other points of excellence.

The above-mentioned were all those I actually saw assembled, the others being put together next day.

As the assembling of each machine was finished a sentry was placed over it to see that no further work was done before the flying test, and so the constructors of machines which were finished early had a nice rest before the judges decided they could fly. When the signal was given it was nearly 8 p.m., and rapidly getting dark, and there was still a nasty cold, puffy wind blowing. Major Brooke-Popham's pilot flight on the Army's Avro was beautifully steady, for the machine is in perfect trim, but that did not make one any happier about Lieutenant Parke's prospects on a machine which had not only been assembled in record time, but was of an absolutely new type, which had never even been off the ground. Still, one had confidence in Mr. Parke's head and hands, though under the circumstances there was bound to be a temptation to struggle round rather than admit defeat, and come down at the end of a straight flight. However, the machine got up in the first few yards, went to 150 or 200 feet over the two little plantations, turned down wind without apparent trouble and came back descending gradually all the way, and finally landed with the wind behind, up hill and in a very bad light. Really a wonderful feat, and one of which the Navy may well be proud, whatever the personal likes or dislikes of certain officers may prompt them to think or say about it. And, be it added, the Green engine, which, through no fault of its makers, had not been fitted with an ideal radiating system, seemed uncertain

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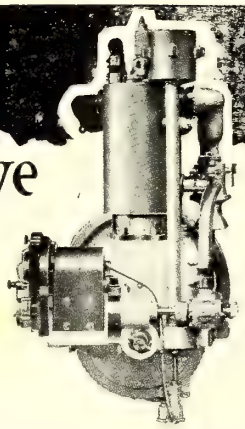
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The next off was M. Bielovucic, who took up a passenger, and made a magnificent flight. His Hanriot was in beautiful tune, and he was thoroughly used to it, so he was able to do justice to what is certainly one of the finest machines of to-day. Mr. Sippe's engine unfortunately turned sulky and refused to run properly, so he failed to get off before dark. Mr. Busteed's Bristol also flew nicely, as did Mr. Valentine's till his engine stopped on the return journey. As he was gliding down he saw a number of sheep in front of him. To avoid landing on them he came down steeply, flattened out, and then saw a fence just in front, which, owing to the bad light, he had not seen before. He made a gallant attempt to jump it, but had not speed enough to do so properly, with the result that he came down heavily on the other side, smashing up his undercarriage, and damaging the rest of the machine rather badly, fortunately escaping any harm himself. As the smash was no fault of the machine, the firm has doubtless been allowed to put in another or to make repairs on this one.

The Vickers provided the surprise of the evening, for, after a short run, which did not appear very fast, it suddenly jumped thirty feet into the air, apparently on a level keel, and flew off at a really big speed, climbing fast and steadily, Mr. Macdonald making a very pretty landing on his return.

Mr. Pixton on the 100-h.p. Bristol biplane made a clean and uneventful flight, but Mr. England, with the 70 h.p. Daimler engine did not get going that evening.

The two Blériots did excellently, M. Perryon took up a passenger on the tandem machine, which climbed away very fast, and later on went up alone on the side-by-side machine, which rocketted off the ground much in the way the Vickers had done. Each of his landings was capitally judged, coming in head to wind between the sheds, and landing down hill almost in the dark, a fine test for the pilot, if not for the machine.

Mr. Cody's test flight was just a typical Cody flight. Up in one long, straight climb, then a faultless turn, and a landing at something like 70 miles an hour, wind behind, regardless of surface or anything else, and without damage to anything. It seemed to be the very general opinion that if Mr. Cody does not win the competition outright he will go very near it, and it is hard to see what is going to beat him by many points, except on quick assembling.

Mr. Sopwith on the Coventry Ordnance did the required circuit easily and neatly, his landing in the narrow space between the sheds being quite the cleanest landing of the day—or rather of the night, for it was then nearly dark.

The last flight was made by M. Prévost on the 100 h.p. French Deperdussin, who came out and did weird right and left turns with big banks at an astonishing speed, and came down without going round the course. Then things were explained to him and he went the correct circuit in style. The light may have deceived the eye, but this machine certainly appeared to be the fastest of the lot.

Unfortunately for myself I was unable to stay till Saturday to see the remaining test flights and the first of the climbing and duration flights, but Mr. Sayers' account which follows will, I am sure, give all essential details of the performances.

In conclusion, let me congratulate all those concerned with the organisation of the competition on the excellent way in which everything was done. There has probably never yet been an aeroplane trial in which there was so little grumbling on the part of the competitors, and in which such universal good feeling prevailed.—C. G. G.

The First Competition Flights.

Early on Friday morning Mr. Pixton on the Bristol tractor was out for several circuits, closely followed by Mr. Sippe on the Hanriot, who made the test after assembling which he missed the previous evening. The British Deperdussin with 100 Anzani was running the engine. Mr. Cody was flying for several minutes testing his machine, and the Maurice Farman made test flight after erection.

About 11 a.m. Mr. Pixton was out again on the Bristol tractor and Mr. Busteed on the Coanda-Bristol monoplane was flying well.

About 5.30 p.m. M. Perryon took the tandem two-seater Blériot for the 3 hrs. test and climbing, doing it very successfully. M. Prévost on the 100 Gnôme Deperdussin, Mr. Cody, Mr. Sippe on the Hanriot, and Mr. Sopwith on the Gnôme Coventry were all out for trial flights.

At 4.45 on Saturday morning Mr. Cody, with Lt. Parke, R.N., as passenger, started for the official 3 hrs. test with full load, followed by Mr. Sippe on one Hanriot, and M. Bielovucic on the sister machine.

Mr. Sopwith on the 100 Gnôme Coventry Ordnance, M. Perryon on the side-by-side Blériot, M. Prévost on the French Deperdussin, and M. Verrier on the Maurice Farman also went for this test. The Mersey monoplane made its test circuits after erection.

M. Bielovucic was brought down within 18 mins. of the 3 hrs. by a broken inlet valve. Hard luck. Mr. Sopwith, finding himself unable to climb satisfactorily, abandoned the attempt after 28 mins. M. Verrier on the Maurice Farman completed the 3 hours, but was unable to climb the required 200 ft. per minute for the first 1,000 feet. Both his and the Coventry's failure must be due to some obscure engine trouble, as they are both excellent climbers.

Mr. Cody reached 5,000 ft. running the engine on half throttle most of the time, and passed the climbing test easily. Mr. Sippe's Hanriot reached 5,500 ft. in 21 minutes, after doing the first 1,000 in under 3 minutes.

Saturday afternoon and evening were squally with drizzling rain, and no competitors were out, and on Sunday there were gales and torrents of rain ; no flying was possible.

Official results of climbing tests not yet published, but rumour has it that one or other or both the Blériots are disqualified for coming down with empty tanks after 3 hours, instead of having a supply for 1½ hours left. The Blériot side is that leakage accounts for any deficiency there may have been.

The Chenu Coventry Ordnance, and the Martin-Handasyde are still laid up by engine troubles, and have not yet appeared. The Bréguet and the Aerial Wheel are in course of construction in sheds, as is the Handley Page.

Sunday and Bank Holiday intervals are being taken advantage of for tuning-up and overhauling by a majority of the occupants of sheds.—W. H. Sayers, Amesbury, Aug. 5th.



An impression of the first flight made in competition at the Military Trials.—A photograph in the dark of Lieut. Parke, R.N., and the Avro biplane starting for the test after assembling. The black "blob" under the rear edge of the upper plane is the pilot's head, wearing a protective helmet.

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The Withdrawal of the Mars and Lohner.

The following letter has been received from Mr. Cecil E. Kny, who entered the Mars and Lohner machines for the Military Competition :—

"With reference to the forthcoming Military Aeroplane Competition, I regret to inform you that Messrs. Jacob Lohner and Co., Vienna, and myself are prevented (at the last minute) to take part therein.

"Mars Monoplane (my entry).—The constructors of this machine, the Deutsche Flugzeug Werke, Leipsic (Germany), are very busy with the carrying-out of urgeat War Office orders (German and Russian), and consequently were almost unable to give the necessary time for the completion of the machine intended for the trials, so that only one day remained for the final test. Unfortunately, a very high wind prevailed on that day, and after an excellent flight the machine suffered some slight damage to part of the chassis when alighting, which, however, was just sufficient not to risk sending it all the way to England, perhaps to only find it arrived too late.

"Arrow Biplane Dreadnought (entered by myself on behalf of Messrs. J. Lohner and Co., Vienna, being their representative). —After this machine had been entered in the above competition it made, as is well known, the wonderful flight Berlin-Vienna, and broke the world's altitude records, so that the Austrian military authorities thought it fit to refuse the makers permission to take part in the British trials, perhaps knowing that not one of the series of machines in course of construction could be got ready in time to substitute the original high-flier, which the Government bought on the spot, ordering more.

"I would have written to you about this before. However I have only just now been informed by the Judges Committee, Lark Hill Camp, that my request for a short delay of the date of delivery cannot be granted.

"While, of course, agreeing with this, I somehow think it not quite fair to Continental manufacturers; in comparison to the British manufacturers they are very much handicapped by the loss of valuable time and the many difficulties which the transit of their machines from so great a distance necessarily presents. Our machines would have had to be dispatched almost a fortnight ago, and I know that some British manufacturers are this very minute finishing their yet incomplete machines. A few days would have made all the difference to us, and the actual trials are not starting until August 6th.

"I should be very much obliged to you if you would kindly publish these facts why we are unable to compete in the trials in your valuable journal.—Yours faithfully,

"Cecil E. Kny (Aeronautical Engineer).

"P.S.—Some interesting 'official' world's records of the Arrow-Plane Dreadnought :—Rate of climbing with one passenger, 1,000 metres, 6 mins. 15 secs. (previous record, 9 mins.). World's altitude records—with two passengers, 3,500 metres; with one passenger, 4,360 metres; without passenger, 4,360 metres."

The absence of these interesting machines is greatly to be regretted, but we hope to see examples of them in this country ere long.

The Aerial League Fund.

One learns that the Aerial League's National subscription is progressing well, and that much encouragement is being received from the provinces. Still certain districts have remained somewhat unresponsive, so the Lord Mayor of London has sent out some 1,300 letters to other Lord Mayors and Mayors, reminding them of their duty. The following is a copy of the letter.

Mansion, House, London, E.C.
August 3rd, 1912.

Dear Mr. Mayor,—By this time you will have received a copy of my letter to General Arbuthnot, Chairman of the Aerial League, in regard to the proposed National Aviation Fund of One Million Shillings.

As this is a matter in which I take a great personal interest, I shall feel grateful if you can see your way to furthering it by any action you may think fit to take towards that end.—Believe me, yours very truly,

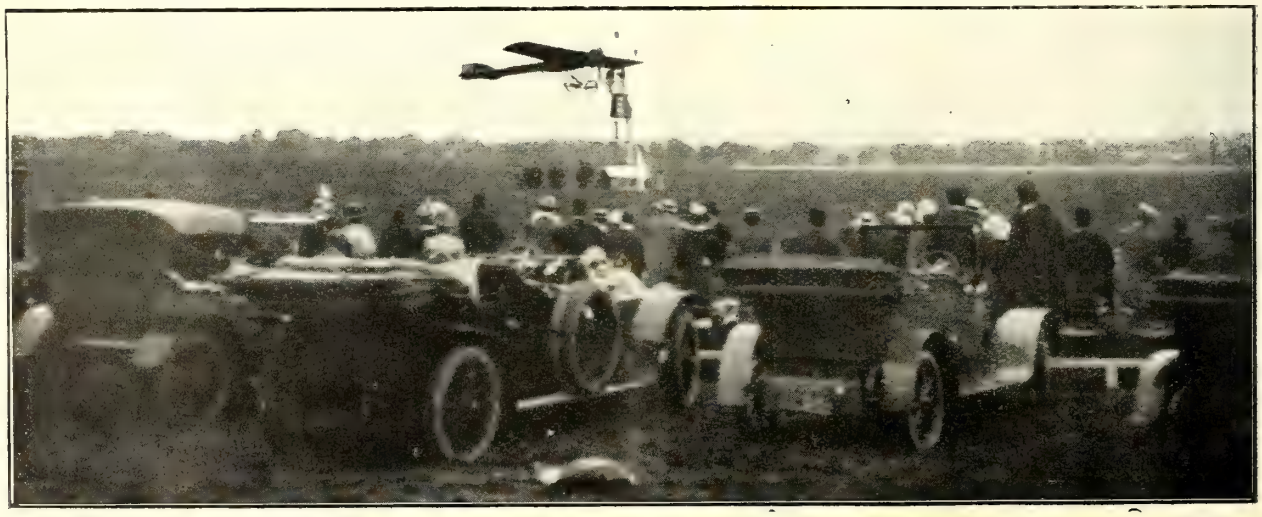
Thos. Boor Crosby,
Lord Mayor.

Mr. Marples, the Secretary of the League, tells us that they have received a large number of offers of help from various parts of the country, and asks us to remind those willing to collect for the fund that it is obviously impossible to issue collecting cards broadcast, without any check as to who is to use them, as they might easily get into the hands of unsuitable persons. Therefore, he suggests that those willing to help should first turn their endeavours towards inducing some prominent person in their neighbourhood to become local treasurer for the fund, so that confidence in the bona-fides of the collectors may be inspired in those who may be asked for subscriptions.

Modesty and Accuracy.

From the *Daily Mail*, Saturday, August 3rd :—"A satisfactory indication of the stimulus given to British flying by the *Daily Mail* is afforded by the opening of the Army aeroplane trials to-day. . . . Yesterday the speed of assemblage of the various machines which have entered for the military competition was put to the test on Salisbury Plain. To-day, weather permitting, one of the most thrilling of the trials will take place. The competing machines will be required to ascend to a height of 4,500 feet, and remain at that altitude for an hour."

As a matter of fact, the trials opened on August 1st, and the assembling tests were made on that day. Further, the conditions only demand that the machines shall reach 4,500 feet, after which they may descend, but must fly at a height of 1,000 feet for one hour in the course of a three hours' flight.



Signor Nardini on his Deperdussin passing the winning-post at Hendon.

The Death of Mr. Lindsay Campbell.

It is with great regret that one chronicles the death of Mr. Lindsay Campbell, the Australian who was killed at Byfleet on Saturday last. Mr. Campbell was Deputy-Warden of Goldfields in the Norwood district of Queensland, and had seen as much of the rough-and-tumble of life as most men, preserving—in spite of, or because of, his adventurous career—a humour, cheerfulness, and goodness of heart which won friends for him wherever he went. Aviation naturally appealed to one of his temperament, so he came over here, with his wife and children, to learn to fly. He spent some time at the Bristol School on Salisbury Plain, where he took his certificate on a biplane, and thereafter continued at the school to learn to fly a monoplane. When the Salisbury School was transferred to Brooklands recently he came with it, and evidently found the air conditions there very different from those on the Plain, for he remarked to the writer, shortly after his arrival, that he would have to learn to fly over again. With typical determination he set to work to tackle the new problems of an enclosed ground and wooded country, only, unhappily, to be killed before he had mastered them.

The accident itself was quite simple, and the accounts of several eye-witnesses agree exactly in all essentials, differing only on the estimated height. After making several successful flights during previous days on the 50-h.p. Bristol monoplane, he went out on Saturday morning and got up to somewhere between 600 and 800 ft. over Byfleet. Then either his engine stopped, or he switched off, in such a position that he could easily have glided into the aerodrome. The switch was in the "off" position when the machine struck, so, presumably, the stopping of the engine was intentional. Instead of putting the nose of the machine down to glide, he continued at its flying angle till the machine was absolutely "stalled," and came practically to a standstill in the air. Then it rolled over to the left, and side-slipped between 100 and 200 ft. The vertical surface aft then got hold of it, and the nose came down, turning the slip into a vertical drive for another 150 ft. or so. At this point the pilot apparently got control of the machine again, for she flattened out, and the onlookers thought that all was well, when exactly the same thing happened again. The machine was pulled up past her gliding angle till she actually began to climb with the momentum of the dive. Then she was "stalled" again, side-slipped, and dived, this time disappearing behind some trees. When help arrived the pilot was in his seat and alive, but he died before a doctor could arrive.

The machine had come down in a small field behind some cottages, about 300 yards from the aerodrome. From her position she was either just beginning to flatten out after the second dive, or else the pilot had again got control, and had tried to land at an impossible angle to avoid running into the hedge which was just in front.

The machine had struck absolutely square on the points of the skids, which were forced back and up, so that one stuck up on each side of the fuselage. The engine was crumpled under the front and forced up through the floor of the passenger's seat. The wings were exactly in position with the fuselage, though naturally broken by the shock. Every control wire was intact, as the writer can assert after a close examination. The little "deck" between the pilot's and passenger's seat was splintered, evidently by the pilot's weight falling on it. The right half of the rudder-bar was broken off by impact from behind, evidently through the pilot coming down standing on the bar. The control lever was bent, and, after testing the position of it, it appeared as if, when the rudder-bar broke, the pilot was thrown forward, so that either one leg or the lower part of his body hit the lever, forcing the handle against the back of the front seat, thus bending the handle back and bowing the tube forward. At the same time, the upper part of his body or his head would strike the "deck" between the two seats, and it was this latter which evidently caused his death. If the rudder-bar had not broken probably the pilot's legs would have broken instead, and the subsequent result would have been the same.

The speed with which the machine struck the ground was evidently great, but the writer has seen lighter machines even worse smashed without harm to the pilot, and he is told that a similar machine, wrecked by Lieutenant Head, R.N., on Salisbury Plain recently, was quite as badly damaged; so Mr. Campbell might, with a little luck, have escaped death even in this accident, and it seems that with a properly designed belt he would have stood a very good chance of being saved.

As to the primary cause of the accident, there can be only one conclusion—namely, an error of judgment on the part of the pilot himself.

In flying, youth will be served; and, though pluck and nerve may not depart with middle age, quickness of action and sensitiveness to such things as variation of angles and the feeling of controls certainly does become blunted, and it is therefore wiser for those of us who are past our first youth to be content with slow machines, even though they entail waiting for better weather before flying.

To Mr. Campbell's widow and children one can only extend one's heartfelt sympathy.

C. G. G.

The Bristol and West of England Aero Club.

The annual general meeting of the Bristol and West of England Aero Club was held recently at Clifton. Mr. A. Alan Jenkins, hon. sec., presented the annual report, which stated that during the first three months of the year a series of lectures was given. It was to be regretted that a larger number of members could not avail themselves of the opportunity of attending. A proportion of the expenses of those lectures was defrayed by the funds of the club, and no charge for admission was made to the members. The activities of the Club were called upon by the committee of the Royal Aero Club in connection with the "Circuit of Britain." Bristol was one of the chief controls of the race, and the members of the club carried out all the necessary arrangements in connection with that affair. The annual dinner of the club members took place on November 23rd, when over 60 members and friends were present. The president of the club was in the chair, and was supported by the Sheriff of Bristol, the vice-presidents, Mr. J. Weston-Stevens, and Alderman C. J. Lowe. The committee arranged lectures for the winter months, and two of these were given before the end of last year. The membership to the end of last year was 96, but since then it had dropped to 80. It was, of course, the desire of the committee to do all they could to hold the interest of existing members, and to obtain a longer roll of names, and they would gladly receive suggestions from members whereby those conditions could be attained. To that end he thought the "model section" which they proposed forming would prove a valuable asset. In his last report he referred to the possibility of a suitable flying ground being found for the club. So far they had been unsuccessful. There was no doubt that if a piece of land could be acquired for that purpose near Bristol the success of the club would be doubly assured. The matter of finance was satisfactory.

The President (Sir George White, Bart.), said that, whilst it undoubtedly was desirable that a club should be provided for this neighbourhood two or three years ago, now it was increasingly desirable, because the science of aviation had developed so much, and was likely to receive a great impetus during the coming year. In England there seemed to have been an awakening, and the Government undoubtedly were intending to make great strides. That day he had visited Salisbury Plain, and there he saw a very plain evidence of the fact in the great establishment which the Navy and Army were setting up. Altogether there were indications that the Government intended to proceed on a large scale with the development of aviation in the Navy and Army. Sir George concluded by congratulating the members upon the satisfactory position in which the club stood.

The following officers were elected:—

Sir George White was unanimously re-elected president.: Mr. J. Weston-Stevens, vice-president; Mr. Sam White and Mr. Stanley White were re-elected vice-presidents; hon. secretary, Mr. A. Alan Jenkins; hon. treasurer, Mr. H. W. L. Harford; hon. solicitor, Mr. H. G. Doggett.

The hon. auditors, Messrs. W. L. Bale and F. W. Tanner, were also re-elected.

Committee:—Messrs. F. S. Barnwell, A. E. Catford, C. Chester-Master, G. B. Dacre, T. W. Egerton, E. H. Desprez, J. R. Palin Evans, C. R. Fry, A. McArthur, H. White Smith, H. J. Thomas, and P. A. Thompson.

Sir George White, in returning thanks, said it was, perhaps, interesting to know that the British and Colonial Aeroplane Company had had orders from no fewer than eight Governments. At the present time the industry was in such a flourishing condition that the company had between 200 and 300 men building aeroplanes.

The Triple Channel Crossing.

Mr. W. B. R. Moorhouse, who has often been referred to in this paper as one of our finest cross-country fliers, put up a new record on Sunday morning last by flying the Channel, accompanied by two passengers. He left Douai in the early morning on the Bréguet biplane which was built for the Military Competitions, accompanied by his wife and by Mr. J. H. Ledeboer, the editor of that interesting scientific monthly, *Aeronautics*.

Except for clouds and occasional rain storms, the journey was comparatively uneventful till the British coast was reached, thence the voyagers encountered fierce gusts one after the other, on one occasion the machine practically standing on its left wing. The engine, a Canton-Unné of 110 h.p., which had hitherto run extremely well, dropped its revolutions from 1,350 to 900, and it was absolutely necessary to land. Unfortunately, there was no room to turn, and they had to come down with the wind behind. By a clever piece of driving Mr. Moorhouse jumped one row of trees, but the machine caught the next row broadside on, the left wing crumpled up, and the whole outfit came down.

According to Mr. Ledeboer's account, all four planes were smashed beyond recognition, the landing chassis was battered and twisted, the engine had cut a big hole in the ground, but the entire body was absolutely undamaged; even the controls and instruments were in good working order.

Incidentally, the machine tore up a 30-ft. tree by the roots and broke two 8-in. branches off another tree. Fortunately, none of the three was hurt in the least, and the result of the accident is proof positive of a fact which The Aeroplane has emphasised on a number of occasions—namely, that in a properly built machine, such as the Bréguet, one could take the most appalling smashes with comparative safety.

Mr. Ledeboer, whose account of the journey appeared in the *Daily Telegraph* on Monday, kept a log of the journey till the weather got too bad for him to write any more, and we take the liberty of publishing this log, with due acknowledgments to the *Daily Telegraph*.

6.28 a.m.—Started.

6.40 a.m.—500 ft. All the crops are still standing or in sheaves—no landing hereabouts. Following the *route nationale* to Arras (23 kilometres).

6.46 a.m.—In sight of Arras. Passing over a fine park with many lakes.

6.50 a.m.—Arras spire passed on our left. Fortifications and ramparts clearly visible. The horizon in front very black.

6.53 a.m.—1,000 ft. Following another of those wonderful *routes nationales*, bordered with poplars and running in a straight line kilometre after kilometre.

6.56 a.m.—1,200 ft. Misty ahead. The landscape is a patchwork of cornfields—inveterate enemies—with here and there a clump of trees and an occasional hamlet.

7.5 a.m.—1,500 ft.

7.6 a.m.—Just entered a blinding rainstorm; however, we are well protected.

7.7 a.m.—Passing over St. Pol, thirty-two kilometres from Arras. We are thus doing 114 kilometres per hour.

7.12 a.m.—Another rain cloud ahead.

7.16 a.m.—In the thick of the rain, and have just come through two bad remous, which the aeroplane took beautifully.

7.20 a.m.—St. Pol. Rain at seventy miles an hour is about as unpleasant as anything could be.

7.28 a.m.—Rain gone. Three bad remous. 2,000 ft.

7.30.—Coastline ahead.

7.32 a.m.—2,400 ft. We are now swinging up the coast towards Boulogne; a thick mist appears to hang over the Channel.

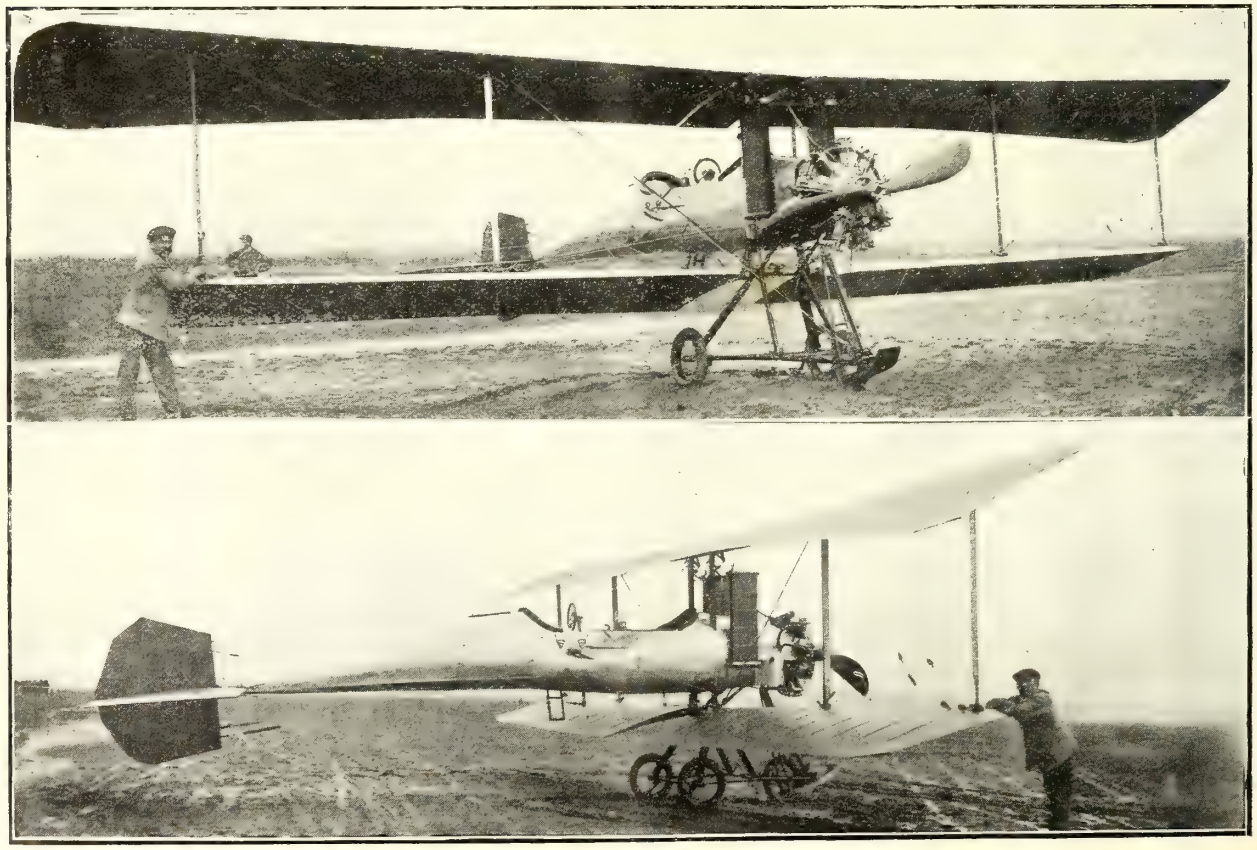
7.38 a.m.—Etaples, straddled across the river near its mouth. Wind freshening perceptibly. Sea very calm; a good number of fishing smacks are out. Sand dunes below—which will not make happy landing!

7.42 a.m.—3,000 ft., on our way up the coast.

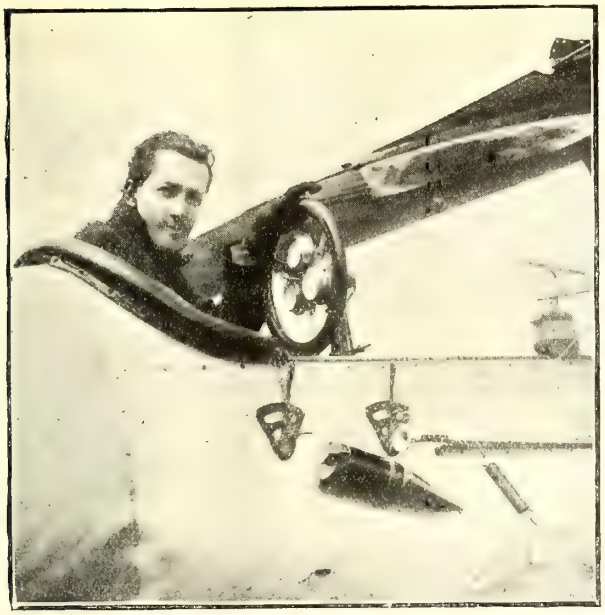
7.45 a.m—Across the beach.

7.47 a.m.—Headed straight out to sea, Boulogne some ten kilometres to the north. All our fortunes now are staked on our trustly Salmson engine. Gris Nez is just visible far up north.

7.51 a.m.—Another rainstorm. The French coast is fading



The three-seated Bréguet on which Mr. and Mrs. Moorhouse and Mr. Ledeboer flew the Channel.



Mr. W. B. R. Moorhouse on his cross-Channel Bréguet. The neat fittings of the switch, oil regulator, and levers is worthy of note.

out of sight behind; in front, of course, nothing visible. The sea a magnificent deep green.

7.57 a.m.—More rain. Nothing visible.

8.1 a.m.—Absolutely alone with the sea.

8.5 a.m.—At last! The coast dimly visible through the cloud banks ahead. A fair-sized steamer ahead; the first ship we have sighted since leaving the shore.

8.9 a.m.—The fog is rising; so is the wind. Just below us a three-master is ploughing its way through the water.

8.12 a.m.—On our left a great promontory out-jutting—Dungeness? If so, we have drifted a long way out of our course. More rain.

8.18 a.m.—We cross the shore once more. A record accomplished.

8.23 a.m.—A terrific remou.

Here the record ends abruptly. The British coast, and the British climate, had been reached.

The I.C.S. Educational Tour.

Mr. Seymour Norton contributes the following account of Mr. Slack's tour :—

"Various formal receptions of students and interested friends residing in the Newcastle district had been arranged by the local staff of the I.C.S., and Slack's departure from Newcastle-on-Tyne was consequently delayed for a few days. Very bad weather conditions also contributed to the delay. Mr. Hamel flew over from East Boldon one evening to greet Slack, and made an exhibition flight to please the crowd that had gathered at Gosforth Park. Our party much appreciated Mr. Hamel's welcome.

"Finally, Slack got away on Thursday, August 1st, at 4.10 p.m. in gusty weather. He was greeted by a salute from the whistles of all the three steamers on the "coaly Tyne" as he crossed the river gorge, and made an excellent flight to Durham, steering for the towers of the Cathedral. Just then, the rain came down in sheets, blotting out everything from view at times, and he had to steer solely by compass, but found little difficulty in picking up Ripon and then Harrogate. He landed on the "Stray" at 5.25 p.m., making 75 minutes for 70 miles, the last 50 of which had been flown through blinding rain. Captain Boyd-Carpenter, M.P. for the Division, received Slack on alighting, our aviator being warmly greeted by a huge and enthusiastic crowd.

" The weather was too uncertain for flight on Friday evening, but at 5.25 on Saturday morning Slack started for Sheffield. Just after passing Leeds he flew into a fog as black as night, from which he could not escape. He flew high, but could not get clear, so went down to 1,000 feet and then to 600 feet, and a little lower to find where he might be. The next thing he saw was a factory chimney dead ahead, necessitating quick use of the elevators to climb up out of the way, and then he found himself nearing tree-tops; in coming down he had got into a valley running east and west, and was heading for its southern slope. A quick turn to the eastward while still climbing, and Slack soon won clear of the danger, but decided to turn back to seek sunlight. He emerged at length from the northern edge of the fog and came down at Seacroft, four miles N.E. of Leeds.

"Here he was most hospitably received by Mr. Wilson of Seacroft Hall, and was later on picked up by the two cars that had followed him from Harrogate. As the weather was clearing all the time, a fresh start was made at 11.30 a.m., Slack wheeling to the eastward to try to clear the fog-banks lying over Wakefield and Barnsley. The fog lay black over Castleford and Pontefract, but over Knottingley the I.C.S. aviator came out into brilliant sunshine that produced violent *remous* in the windless air. Slack was tossed about worse than he can remember experiencing elsewhere, the oscillations being most rapid and incessant. While striving to head towards Doncaster the monoplane executed three-parts of a spiral dive, bringing up with her nose pointing N.E.; this performance put the finishing touch to the accumulated trouble, and poor Slack gave up his breakfast as an oblation to the spirits of the air. He says that a 1912 Blériot with a square observation window in the right-wing is much more convenient at such times than a biplane could ever be. To give his stomach and the atmosphere time to recover themselves, Slack descended at Norton Priory, 7 miles S.E. from Knottingley.

"About 4.30 p.m. things looked better, and he set off once more for Sheffield. The flight was, however, much impeded by wind and rain and by wind and fog, and Slack says that his heart was in his mouth throughout the passage across the very rugged intervening country, studded everywhere with collieries and factories of every description. He flew as high as he could consistent with picking up his landmarks through the ground mists, was tossed about a good deal by the eddies over the reservoirs to the north and west of Sheffield, especially in crossing the gorge of the river Rivelin, but safely ended a hazardous flight by a fine *vol plané* from a height of 2,500 feet, alighting on the old racecourse at Redmires, about 6½ miles west of Sheffield. The Gnôme engine wants a little overhauling, and as soon as that has been carried out, the southward flight will be resumed."

Mr. Cody's Reward.

Mr. S. F. Cody has, after lengthy negotiations with the War Office, received from the Lords of the Treasury a sum of £5,000 as payment for the sole rights in the military use of the man-lifting kites designed by him. He has in return given an undertaking not to design kites, or reveal his earlier designs, for or to any foreign Government. The sun at last shines on Mr. Cody after years of cloudy weather. There is none in Great Britain more deserving of success. Perseverance sometimes prospers, though it is usually the bad apprentice who becomes Lord Mayor of London.

Accuracy and Workmanship.

In these days of the popularity of the aeroplane, models of flying machines of various sorts in silver or gold are in request either as trophies, prizes, or presents, or, in some cases, as mementos of certain machines. The great difficulty is to get these models made so that they bear even a reasonable resemblance to the machines they are supposed to represent, and a number of dismal failures have been turned out. It is, therefore, the more satisfactory to chronicle a real success when one comes across it. By far the best example of metal work it has yet been the writer's fortune to see is the model of Mr. W. B. R. Moorhouse's Blériot type monoplane, which has recently been made to his order by Mappin and Webb, Ltd. This machine was made in a desperate hurry, so as to be used as a decoration on the wedding cake at Mr. Moorhouse's wedding. Yet in spite of this it is one of the most perfect pieces of work one could wish. Those of us who knew Mr. Moorhouse's machine could not fail to recognise it at once, and even those who did not know that individual machine exclaimed at the wonderful accuracy with which the model reproduced the Blériot type. Not only were the general dimensions correct, but even minute details such as the straps, which Mr. Moorhouse had had fitted for the convenience of men holding the machine when starting, were all carried out in solid silver. In spite of all this detail work the price was wonderfully moderate, and much less than one expects to pay for the ugly metal tanks and baths which are so often presented as trophies by misguided but well-meaning sportsmen.

The writer has had the pleasure of inspecting Messrs Mappin and Webb's works in Oxford Street, where this model was constructed, and, with such a reputation as the firm possesses, they are naturally on a scale commensurate with such an extensive business, but one could not help being surprised at their magnitude, and at the exquisite work done.

The Week's Work.

MONDAY, July 29th.

Everywhere.—No flying, hail, wind, rain.

TUESDAY, July 30th.

Brooklands.—No flying, rain, wind, hail.

Farnborough (R.F.C.)—Mr. de Havilland out in 30-mile wind on *B.E.4.*, handling machine well and doing fine banked turns. In evening strong wind, but Major Burke on *B.E.1.* making fine landings.

Northampton.—M. Salmet on Blériot arrived from Swindon (66 miles), speed over 90 m.p.h. Flying not quite a novelty at Northampton, as two gentlemen named Moorhouse and Slack, both of whom are able to fly, although they are British, have already visited that town.

Rugby.—Mr. B. C. Hucks flew over from Coventry, gave an exhibition flight with his Blériot and flew back.

Sunderland.—Good flights by Mr. Hamel on Blériot at East Boldon Racecourse. Something like 100,000 people said to have witnessed flights; presumably most of them outside race-course. Mr. Hamel presented with cigarette case by Mayor of Sunderland, Councillor E H. Brown. In his second flight it is reported that Mr. Hamel passed over Sunderland on his way to Roker. It would be as well to have Mr. Hamel's denial that he flew across the town.

WEDNESDAY, July 31st.

Brooklands.—At Sopwith School, morning, Mr. Copland Perry for ten minutes alone on Burgess-Wright, and afterwards testing school Farman before handing over to pupils. Major Trenchard then flew for his brevêt and passed tests in really excellent style. Mr. Copland Perry started for Cowes on A.B.C.-engined Burgess-Wright, but was obliged to land near Winchester owing to leaking water joint, after a flight of 1¾ hours against strong head wind.

At Bristol School.—Mr. Merriam out alone, then with Major Ashmore, Mr. Summerfield, Captain Brabazon. Captain Macdonald then for brevêt, taking one half splendidly. In second half engine failed.

Mr. Bettington straights on Anzani monoplane, followed by Mr Pickles. Lieut. Arthur on biplane with Mr. Gould and then on two-seater monoplane to 4,000 feet, making a long excellent *vol plané* with engine cut off from that height. Mr. Merriam on Anzani monoplane testing.

Edinburgh.—M. Caudron, for whom Mr. Ewen had wired, made short flight from beach at Portobello, but delay in changing sooted plug prevented long flight, only went a short distance.

Farnborough (R.F.C.).—Major Moss, on Henry Farman, 10 mins. flight, had to finish owing to engine trouble. Major Burke several flights on *B.E.1.* Mr. de Havilland on *B.E.4.* and later on *B.E.3.*, testing new steering apparatus.

Hendon (Grahame-White School).—Morning gusty, but calm compared with previous days. School out at 4.15, and Mr. Cholmondeley and Captain Salmond out for circuits. Then Mr. Wynne went out for straights with Mr. Blackburn, followed by Commander Yeats-Brown alone. Then Mr. Cholmondeley and Captain Salmond out for their brevêt tests, both passing on No. 7—good work this, for No. 7 is an extra strong school machine and is very heavy. After this, Lieutenants Allen and Stopford out for straight flights with Mr. Blackburn.

Newcastle-on-Tyne.—Mr. Hamel on Blériot flew over from Boldon Racecourse to Gosforth Park, and is alleged to have flown over Jarrow and Wallsend, both thickly inhabited districts. After arriving he gave one of his usual excellent exhibitions.

Northampton.—Pretty flight by M. Salmet on Blériot just before dark.

THURSDAY, August 1st.

Brooklands.—No flying possible in morning owing to high wind.

At Vickers School, in afternoon, Capt. Stott rolling on Vickers III, when gaining confidence forgot his mount was not a horse and therefore let it eat grass to detriment of propeller and a skid.

At Bristol School, 6.45 p.m., Mr. Hotchkiss on 70-h.p. two-seater monoplane testing, then went with Turkish officer, making total weight of 560 lb.; got off within 100 yds. and climbed first 1,000 ft. in 4 mins., then on up to 1,900 in 7 mins., flew for ½ hour, shut off engine at that height and glided down; then rose 60 ft. and switched off, then to 160 ft. and switched off again, then straight up 1,000 ft. again within 4 mins. and 1,500 ft. in about 6 mins., flying about 10 mins. All in 15 m.p.h. wind. In meantime, Lieut. Arthur alone on two-seater monoplane. Afterwards Mr. Pickles and Mr. England straights on same. Messrs. Pickles and Arthur both flying straights on Anzani monoplane. Mr. Merriam also on Anzani and later on biplane with Lieut. Loultcheff, Major Ashmore, and Lieuts. Parker, Wanklyn, Playfair, Gaskell, and Mr. "Darracq."



Not Mr. Hamel, but Mr. Desoutter, on the old Gordon-Bennett Blériot, at Hendon.

Eastchurch.—Commander Samson, Lieuts. Grey, Malone, Briggs, and Private Edmunds all out in the evening for two hours.

Edinburgh.—M. Caudron again out on sands and made a very nice flight, landing in Sports Ground of the Marine Gardens, where the machine is housed. This ground, only one available, about as bad as could be for starting, as quite short, and only possible to get out at one end. In evening, wind being in right direction for starting, M. Caudron flew out and made very nice flight of 15 mins. and left that evening for home.

Farnborough (R.F.C.).—Towards evening wind dropped considerably, so Major Burke on *B.E.1.* and Capt. Mackworth on *B.E.4.* made several flights. Mr. de Havilland out on Bréguet *B.3.* several good flights; Major Moss and Capt. Reynolds on Henry Farmans. Lieut. Barrington-Kennett on 70-h.p. Nieuport. All machines very busy, five being up at once. Also airship *Gamma* out scouting.

Harrogate.—Mr. Slack, on I.C.S. Blériot arrived from Newcastle via Durham and Ripon.

Hendon.—At Grahame-White School, school out at 7.40 in evening. Lieut. Rathborne, Mr. Wynne, Lieut. Allen, Lieut. Stopford, and Mr. Fuller up in turn with Mr. Blackburn for straight flights.

FRIDAY, July 2nd.

Brooklands.—At Avro School, in afternoon, Mr. Vyvyan on school machine for first rolling lessons and did low straight flights instead.

At Vickers School.—In evening Lieutenant Beatty, R.E., out testing Vickers V. before handing over to Knight, who stayed up without goggles for 30 minutes, flying strongly at 100 feet.

At Martin Handasyde's.—In early afternoon Mr. Bell out to visit a thunderstorm. Machine appeared thoroughly to enjoy itself in 20-mile gusts, and later flew over to Woking and Ripley.

At Sopwith School Captain Ellington (new pupil) on Farman for first rolling practice.

At Bristol School, 4.30 a.m., Mr. Hotchkiss on 70-h.p. monoplane. Mr. Merriam alone, then with Major Ashmore, Lieuts. Parker and de la Ferté, and Mr. Summerfield. Mr. Hotchkiss with Turkish officer in 50-h.p. monoplane for short flight. Mr. Merriam with Lieuts Wanklyn and Playfair, former afterwards straights alone. Capt. Macdonell then for brevêt, taking it in good form with excellent landings. Capt. Brabazon for straights. Lieut. Arthur with Lieut. Playfair and Major Ashmore. Mr. Merriam with Lieut. de la Ferté. Mr. Hotchkiss with Mr. "Darracq," Mr. Gould, and Lieut. de la Ferté. Monoplanes busy. Messrs. England and Barnwell, Prince Cantacuzene, and Mr. Cheesman on Anzani. Mr. Pickles figures of eight on two-seater at about 500 ft. Mr. England circuits on same about 600 ft. Mr. Barnwell and Mr. Campbell straights. Lieut. Arthur with passenger. In evening, Mr. Hotchkiss on biplane, then with Major Ashmore, Lieut. Playfair, Mr. "Darracq," and Lieut. Parker. Mr. Merriam with Lieut. de la Ferté, Major Ashmore, and Lieut. Wanklyn. Lieut. Wanklyn, Mr. Summerfield, and Lieut. Playfair straights alone. Mr. Merriam with Lieut. Gaskell. Mr. Hotchkiss with Mr. Grant, and landed him on track to save part of walk to station. In monoplane section, Prince Cantacuzene and Mr. Cheesman on Anzani rolling. Lieut. Arthur on two-seater monoplane with passenger. Mr. Pickles on two-seater flying circuits at 700 ft. Mr. England and Mr. Barnwell also circuits on same. Mr. Lindsay Campbell on same flying circuits at about 600 ft. and managing machine well. Mr. Hotchkiss on same machine and then took Mr. Cheesman as passenger to over 1,000 ft. In biplane section, Mr. Merriam also took up Capt. Boger and Lieut. Loultcheff.

Cowes.—In the morning, Mr. Copland Perry on Burgess-Wright left Winchester for Cowes, where he arrived safely at extremely difficult landing ground after capital flight.

Colchester.—Fine flights by M. Salmet on Bleriot going thence to Brightlingsea, Clacton, and Walton-on-Naze.

Eastbourne.—Mr. Grahame-White arrived on Paulhan-Curtiss hydro-biplane covering 27 miles in 20 minutes. After Mr. Grahame-White had left, Mr. Travers started to follow in Henry Farman biplane, but engine was stopped by wave breaking over it. This being put right he flew to Eastbourne, and then to Bexhill and St. Leonards, later returned to Eastbourne.

Eastchurch.—New Admiralty Bréguet arrived packed in crate, and is awaiting arrival of Bréguet pilot to put it through the one hour's flight test before acceptance by the Admiralty.

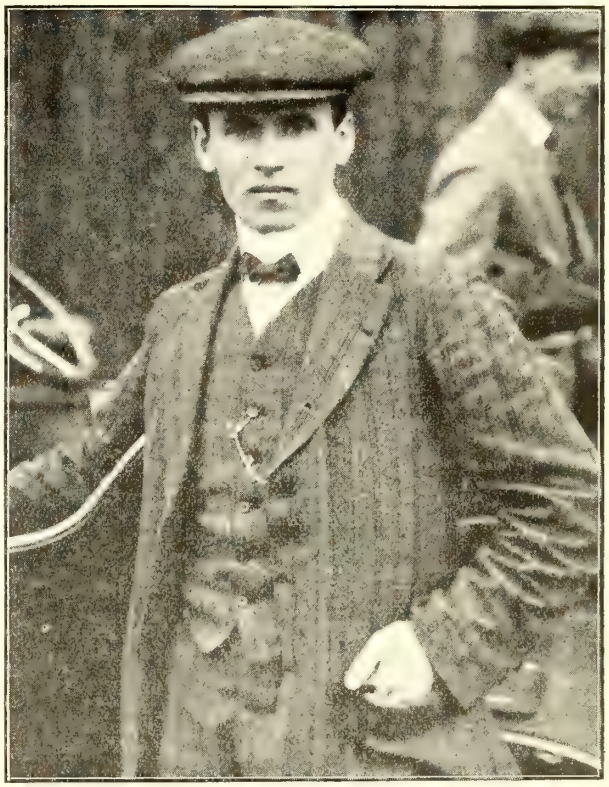
Commander Samson out on Short monoplane, taking as passenger Mr. Cooper, and afterwards Mr. Bligh, junior.

Farnborough (R.F.C.).—In morning Major Moss and Capt. Reynolds out on Henry Farmans, Major Burke on *B.E.1* taking passengers. Capt. Mackworth on *B.E.4.* several flights, Mr. de Havilland on Bréguet *B.3.*, later out on Factory machine testing Maxim gun. Airship *Gamma* several flights. Lieut. Barrington-Kennett flew 70-h.p. Nieuport to Salisbury. In the evening Major Burke on *B.E.1*, Lieut. Longcroft on *B.E.4* several flights, one flight at 1,000 ft. This only the second time he has flown this machine. Capt. Raleigh several flights on Bréguet *B.3.* Lieut. Fox on Factory machine several flights at 2,000 ft. He seems to be able to fly any type of machine. Mr. de Havilland on *B.E.3.* several flights. Capt. Reynolds on Henry Farman when starting for a flight had misfortune to break propeller. All machines out till dark.

Hendon.—At Grahame-White School. School out at 6.20 a.m., when fog cleared, Lieut. Rathborne making good solo straights, followed by Mr. Wynne and Lieut. Stopford, also doing straights alone. Then Lieut. Allen attempted same for first time, but was rather unsteady, and finished by a "pancake," which drove chassis into lower plane—machine, in fact, suffering from serious concussion and compound fracture.

At Bleriot School.—In between showers, school managed to put in small amount of work in evening, Messrs. Hall, Sacchi and Welburn each doing straight on *B2.*

Lincoln.—Exhibition flying by Mr. B. C. Hucks on Blériot,



Mr. Louis Noel, who flew a Henry Farman hydro-aeroplane across the Channel on Monday.

chasing himself round spire of cathedral, got caught in *remou* caused by own wash, and, according to local reports, was very nearly upset. Also went up to over 5,000 feet. Lincoln folk very well pleased by fine sight.

Liverpool (Waterloo).—Mr. Birch out on school machine in very strong North wind, flew 1½ miles.

Torquay.—M. Hubert on Henry Farman flew from Teignmouth to Torquay, where he was well received.

SATURDAY, August 3rd.

Brooklands.—At Avro School, in morning, Mr Vyvyan out for rolling and straight flights, this time former predominating; gives every promise of flying well.

At Martin-Handasyde's.—Mr. Bell out testing machine and flying strongly.

At Bristol School, Mr. Merriam first out, then with Major Ashmore. Capt. Brabazon alone for straights with perfect landings. Mr. Summerfield straights. Mr. Merriam with Lieuts. Playfair, Wanklyn, and de la Ferté. Mr. Merriam with Willis behind and scouted all round Chertsey to try to find Mr. Hotchkiss, who had gone away about an hour pre-

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viously on 70-h.p. monoplane and got lost in fog. Monoplane section not allowed to start work until the fog had lifted. Lieut. Arthur then away on two-seater for ¼ hour and found everything perfect.

Mr. Lindsay Campbell then away alone on same machine, and after flying two circuits was seen to stop, and machine side-slipped. Mr. Campbell rectified that, and then dived into a field a few hundred yards from the track. This was all the reliable information that could be gained of the fatal mishap. The machine afterwards examined was found intact in every respect, but badly damaged through the fall.

At 5 a.m., Mr. Hotchkiss brought out the 70-h.p. two-seater monoplane to carry out Turkish Government tests already commenced. Turkish officer then up as passenger. Outside Brooklands thick fog found, and from the moment they lost sight of Brooklands Mr. Hotchkiss never saw anything to tell him where he was. After circling in hopes of picking up Brooklands he steered for the Thames, which he found at Windsor. Thence they followed the river the wrong way beyond Maidenhead. Mr. Hotchkiss then turned round and lost the river again in fog, so rose to 2,000 ft. and continued flying about to fulfil the 1¼ hours non-stop. At end of this weather had got rather bad, so he began to look for landing place, which he found in small field on top of hill at High Wycombe, some 30 to 40 miles away from Brooklands. First attempted to land in another field, but within a couple of hundred feet luckily saw it was corn, so to avoid another somersault *à la* Sabelli he set his engine going and flew on till, coming across a field with a horse careering in it, assumed that horse knew grass when he saw it, made for same field, and landed perfectly. Very fine performance considering weather. Mr. Hotchkiss naturally very distressed on returning to Brooklands to hear of Mr. Campbell's death, a sad end to a week of excellent and strenuous work.

Douglas, I. o. Man.—Exhibitions over bay by Mr. Hamel on Blériot Arrived at 4 p.m. and was flying at 4.30 p.m. Aerodrome very small, with inconvenient church just outside. Mr. Hamel went out over bay at 3,000 feet, swooped down over steamer, which emitted loud wail from syren, giving impression of antediluvian flying monster attacking helpless sea beast. On returning reported seeing land at four points, which turned out to be Scotland, England, Wales, and Ireland. Probably first time all seen at once.

Eastbourne.—Various passenger flights by Mr. Travers on Henry Farman, including small boy aged four, with his father.

Eastchurch.—Early morning, Lieut. Briggs out on school biplane, also Mr. Jezzi on Jezzi tractor biplane. The fog proved too much to allow further flying until after 10 o'clock, when Lieut. Grey, with Lieut. Briggs as passenger, on 70-h.p. tractor, went up to sound the conditions with a view of flying to Dymchurch, where the Lancaster Regiment is in camp. It proved too windy, so it was postponed until the evening, when Lieut. Grey successfully accomplished the trip. Mr. Jezzi out on biplane in afternoon.

Edinburgh.—In morning, Mr. Marty, a young pilot of Caudron's, arrived, and tide being favourable, about 1 o'clock made a couple of flights of about 10 mins. each from beach, landing once there and second time in the grounds.

Farnborough (R.F.C.).—Early, no wind, but plenty of mist. Capt. Raleigh on Bréguet *B.3.*, Major Burke on *B.E.1*, Lt. Longcroft on *B.E.3.*, Capt. Mackworth on *B.E.4*, all flying well.

Hendon.—At Blériot School, Mr. F. M. T. Reilly, new pupil, receiving preliminary instructions.

Leeds.—Mr. Slack on I.C.S. Blériot landed at Seacroft, four miles out, having started from Harrogate and run into thick fog over Leeds.

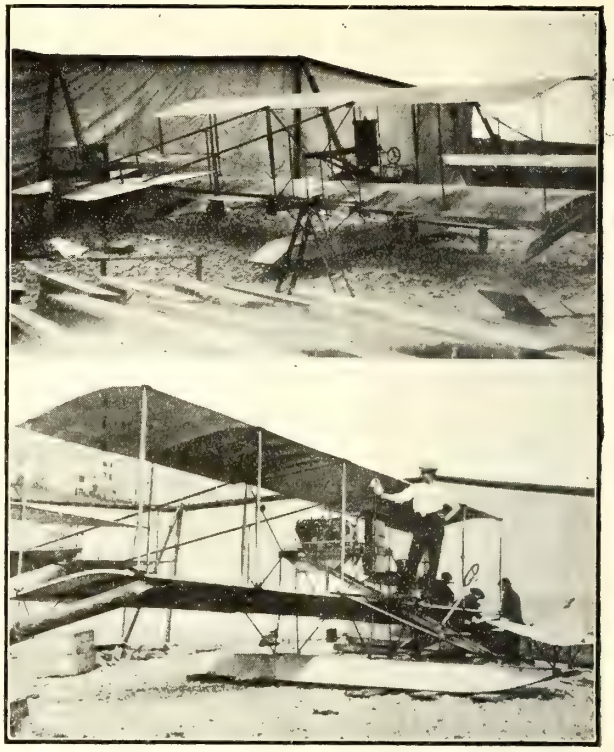
Knottingley.—Mr. Slack arrived at Norton Priory from Leeds *en route* for Sheffield.

Liverpool (Waterloo).—Mr. Melly flew two-seater back from Childwall Polo Ground after waiting a fortnight for new propeller. Weather conditions at moment were perfect, and he soon reached 1,000 ft., but prevailing mist made it difficult to find way even in that short distance. Glide down to Waterloo hangars was witnessed by large and appreciative crowd.

Sheffield.—Mr. Slack arrived in evening after roughest journey in his tour, involving fog, rain, wind, heat *remous*, and violent air sickness. Engine now needing overhauling, so knocked off flying for holidays.

Windermere.—A week of thunder, rain, and wind. *Water Hen* out once with one passenger.

Visitors' comments almost as bad as the weather. For instance, two girls' first visit: "I sy, Mary Jane, why is it called the hairyplane? Don't see no hair much about it."



M. Paulhan and his hydro-aeroplane, photographed at Brighton by Mr. R. W. T. Collins.

Lady from South: "Wing fabric made of cotton? Surely not! Cotton is such nasty stuff. But there—I forgot. We're in Lancashire, arn't we? And you have to boom the local industry."

SUNDAY, August 4th.

Everywhere.—Wind blowing in gales, with frequent heavy showers. No flying.

The Week-End at Hendon.

The week-end meeting at Hendon was so far as the organised races were concerned regrettably spoiled by the prevalence of atmospheric disturbance. On Saturday the wind was too high for any competitions to be carried out. M. Desoutter, whose capabilities as an aviator increase daily, on a Blériot monoplane, and M. Nardini, on a Deperdussin monoplane, made several exhibition flights of excellence.

Sunday was an empty day so far as flying was concerned. Wind and rain competed alone for mastery. Mr. Lewis Turner made one despairing attempt to fly on a biplane, *type ancien*, but wisely refrained from perseverance.

On Monday, which holds some kind of record in the history of Bank Holidays according to a jaded daily Press, the wind varied from twenty to thirty-five miles until a late hour in the evening. When the wind was at its highest, shortly after three in the afternoon, M. Prévost made a disturbed flight round the aerodrome on a 50-h.p. British-built Deperdussin, which flew beautifully, landing perfectly at the end.

Later M. Desoutter flew for a quarter of an hour, circling the aerodrome several times on the old Gordon-Bennett Blériot monoplane. Mr. Lewis Turner also made a flight on the Howard-Wright biplane. When the wind dropped M. Nardini flew on his Deperdussin monoplane, afterwards racing against M. Desoutter on the Blériot.

As the twilight fell the biplane built by Handley Page, Ltd., for Mr. Sonoda, of Japan, made a pallid and hesitating appearance. It did not fly, owing perhaps to engine trouble.

Bank Holidays at Hendon have invariably brought the worst of weather, and this has been the worst of the lot. Nevertheless there is no reason to imagine that there is less to be seen there now than hitherto. On the contrary a number of new machines are arriving, and with the fine weather of September and October we shall see better flying than ever.

Structural Weakness of Monoplanes.

By a Military Aviator.

There are two principal forces acting on the wings of a monoplane when in flight :

(*a*) An upward push of the air against the wings, which is used to counteract the attraction of gravity. This is fairly constant in any one machine, although it is greatly increased on encountering a *remou* or bad gust.

(*b*) A backward push caused by the resistance of the air, which tends to force the wing tips backwards towards the tail. This force increases very greatly as the speed of the machine increases, as, for instance, when diving with the engine running.

Consequently, whilst at slow speeds the resultant of these forces acts chiefly in an upward direction, at high speeds it will be more in the direction of the tail of the machine.

Designers seem to have concentrated their attention on the upward force and rather neglected the latter, and this in some cases has led to a serious structural weakness.

To resist the upward force the wings are stayed downwards with strong wires, and in some cases braced king-posts are fitted.

In biplanes with front elevators the stays from these help to hold the wings in place, but on a tractor monoplane no such stays are fitted, and the latter force has to be met by the rigidity of the wings themselves and of their attachment to the fuselage.

In most modern types the wings themselves seem to be strong and rigid enough, but their attachment to the fuselage is not always correctly designed.

In most monoplanes the two wings do not meet in the middle as is the case with biplanes, but are attached to the outside of the fuselage, leaving a space between to allow of the pilot sitting between the wings directly over, or near, the centre of pressure. This may be a source of weakness if proper cross-struts are not fitted inside the fuselage.

In a correctly designed machine

(*a*) Both the front and rear spars of the wings should pierce the fuselage and be firmly joined together in the middle ; or if this is not done there should be cross-struts at the correct points in the fuselage, to the ends of which they could be fixed outside—a cross-strut for each spar in the wing.

(*b*) Also to resist the backward turning movement of the wings the front and rear spars of the wings should be as far apart as possible at the base of the wings.

(*c*) If fore guys cannot be fitted to the wings, then the lower fixed stays from the wings should be attached to the landing chassis well forward, so that they exert their pull in the proper direction.

If certain monoplanes be examined which have had accidents, the causes of which have not been explained, it will be found that they have not been designed in accordance with these rules.

Weather Conditions in Egypt.

Though no military flying is yet arranged for Egypt, it is bound to come in time, especially in view of the French *escadrilles* in Morocco and the Italian military aviation in Tripoli, so information on the subject of weather conditions is useful. Mr. Denys Chataway, lately a capable pilot of the Deperdussin, who has until recently been for some months in the Egyptian Irrigation Service, has been making observations of the weather up country, and sends the following notes, which will be found of considerable interest by those who are thinking of flying in that country.

Writing some weeks ago, he says :—"I have observed the weather very carefully during the eighteen days I have been here, and am greatly pleased with it. At sunrise it has been dead calm, or say 3 m.p.h., on fourteen days, 6 or 7 m.p.h. on three days, and about 15 to 25 on the remaining day. The calm days continue being calm for varying periods. Sometimes the wind gets up at nine or even eight, and at others (as to-day) it does not get up till two in the afternoon. Only on five days has the wind gone down by an hour before sunset ; on all the others it has been blowing 10 to 15 m.p.h. at ten p.m. It has always (except on the four windy days) dropped by midnight.

"As to the sun and light conditions, I can say without hesitation that at eight every morning the *remous* must be bad enough to put an end to school work. Still, I think one could get in work till seven a.m. practically every day, because it is quite cool and nice till then. Also, unless my judgment is wrong, for at least four days on either side of full moon one could fly with the utmost comfort at night. The rarified and dry air, I believe, accounts for this. Anyway, I read the paper by moonlight without much trouble last night (full moon). Of course, you can't judge really without trying, but I can quite imagine twelve hours' school work on end during the night. Veritable night birds !

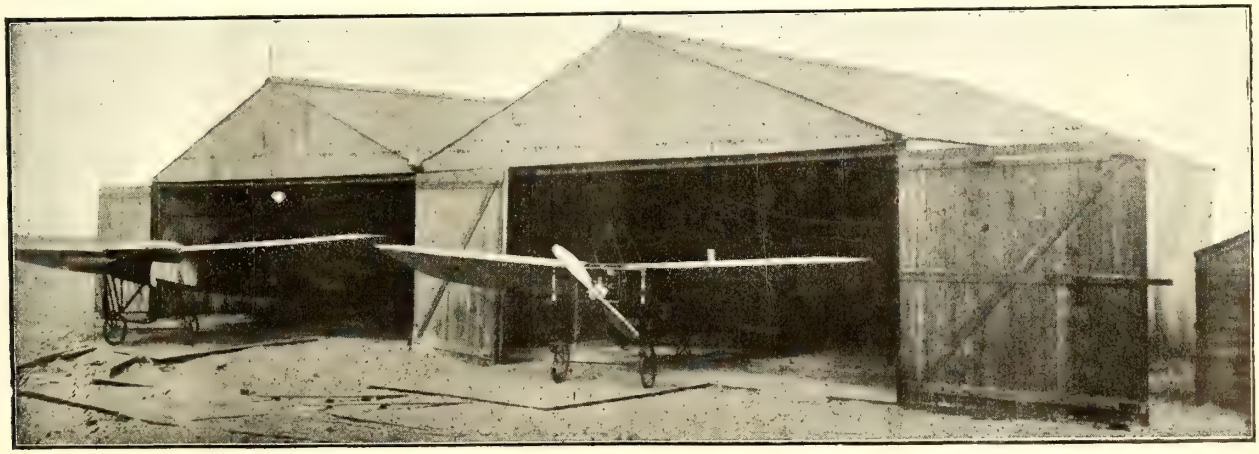
"I am not in the least surprised that aviators found the air bad at Heliopolis. They chiefly flew from eleven a.m. to seven p.m. (the competition times). Well, I have seen birds at eleven a.m. on a comparatively calm day (say 8 or 10 m.p.h.) being chucked about all over the place. I mean to say, they look as if they were in a gale (I noticed that smoke was not travelling any faster up there than low down). When we get a south wind, the wind itself is hot, having come off the desert. It is as if you were in an oven, with a strong wind into the bargain. What it is like to fly in, I can't imagine, and I haven't the slightest wish to try.

"Another frequent sight in the middle of a calm day is a whirlwind of dust. It sometimes starts with a little puff of wind ; at others it starts with a model whirlwind about a foot in diameter, and ends about 30 ft. across and 200 ft. high. I don't know if they go higher, but you see the dust at that height. If that wouldn't give aviators "cold feet," as the Heliopolis ones had, I retire from aviation.

"In the winter, of course, we don't get the heat, so probably one could do, on an average, three hours a day comfortable flying. Mind you, in England one only gets about one hour a day, if that.

"Another advantage here is that the whole country is dead level, until you get 100 miles south or so, and even the hills are only about 300 ft.

"We have some quite respectable soarers here. Large crows they look like. (They call them kites, but I don't know if they are pukka ones.) You see them going round and round for hours. They rise at times to about 500 ft. in about three minutes. Not quite good enough for the military competitions, but they can probably improve upon it."



A Northern School.—Mr. Melly's sheds at Waterloo, near Liverpool.

The Sunless South.

The sunny South is succeeded at this time of the year by a sunless South, if one goes far enough to find it. The British Antarctic Expedition under Captain R. F. Scott, R.N., is now enduring the polar winter, where for six months the sun is hardly seen. The official photographer to the expedition, Mr. H. G. Ponting, during the previous summer, secured many excellent studies of life and scenery in the Antarctic. His report concerning his chemical equipment addressed to Messrs. Burroughs Wellcome and Co. was sent from Ross Island, and reads as follows:—"I think you may be pleased to hear that the 'tabloid' photographic materials which you supplied to the expedition have given every possible satisfaction. It has been a pleasure to work with chemicals put up in such an eminently practical and convenient form. Especially I would commend to the notice of all travellers and explorers, as well as to all amateur photographers, your 'Rytol.' It gives fine brilliant negatives, and seems to be equally suitable for plates, prints, or slides. All our developing work here is being done with it. Already some hundred dozens or more have been developed with it, as well as thousands of feet of cinematograph film. I am deriving as much satisfaction from its use now as on the day I first tried it, and have never had a better developer." Captain Scott added to the report: "I fully concur."

Presentation to Mr. Vivien Hewitt.

On Thursday, August 1st, in the Rhyl Marine Gardens, Mr. V. Hewitt was presented with an address and a silver cup from the Rhyl Urban District Council and residents in commemoration of his plucky flight across the Irish Sea on April 26th, 1912. At about 4.30 people began to gather round the Marine Gardens in the hope of seeing Hewitt presented with the address and cup. At a quarter to five the people were admitted to the enclosure specially reserved for the occasion, and a few minutes later Hewitt and all the town councillors, etc., came and sat down at a big table in front of the people. First of all, Mr. Sykes, the chairman of the committee, made an opening speech.

After this the hon. sec., Mr. Polkinghorne, read the address and then presented it to Mr. Hewitt. Then Mr. Hales, on behalf of the visitors, made a speech, in which he said he considered that Mr. Hewitt was a hero, not for the plain fact that he flew the Irish Sea, but that he started after one poor aviator, Allen, had lost his way, and presented the silver cup. Hewitt returned thanks, and in his speech he alluded to the fact that he thought nobody paid enough attention to the mechanics, that his success was due, not only to his skill, but to the manner in which his two mechanics and his cousin helped to keep his machine in perfect order, and he considered that the mechanics ought to be thought of just as much as the aviator. Therefore, he had great pleasure in presenting his two mechanics with a photograph of himself in the machine in commemoration of their splendid services in connection with the Irish Sea flight. He also presented his cousin, Mr. George Baker, with a solid silver cigarette case for the trouble he had taken in connection with the Irish Sea flight. The mechanics were also given two gold medals from the Council. God Save the King was then played by the band, and Hewitt, surrounded by people, fought his way to a taxi, in which he drove off with his mechanics and cup, etc., midst cheers and shouts.

Another Juvenile Pilot.

Mr. Kershaw, who took his certificate at the Grahame-White School on July 9th, is the son of the late Dr. Eric Edward Kershaw, Staff-Surgeon, R.N. He was educated at Epsom College, and his age is only eighteen years and two months, so that he is among our youngest pilots, if not quite the youngest at the moment. He has been four months at the School, so he actually took up flying before he was of an age to be granted his brevêt.

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A well-known constructor of aeroplanes has a vacancy in his office for a capable youth as stenographer and typist. There is here an opportunity for an enthusiast to obtain a footing in the industry. Applicants for the post should write "Constructor," c/o The Aeroplane.

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THE AEROPLANE

1d WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, AUGUST 15, 1912. No. 7.

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M. Bielovucic, on Hanriot No. 1., landing close in to the enclosure. The strength of the wind may be judged by its effect on feminine garments.

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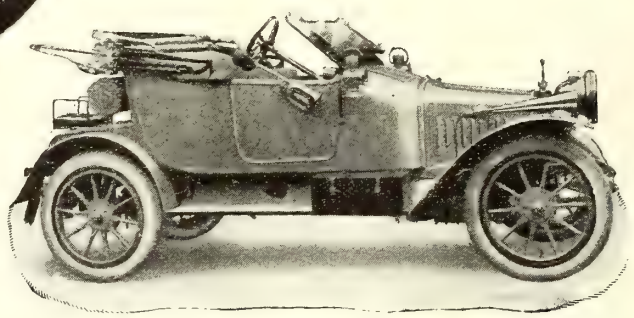
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MATTERS OF MOMENT.

AVIATION AND THE EMPIRE.

The visit of sundry political persons and personages, together with some important foreigners, to the Military Aeroplane Competition on Salisbury Plain last Thursday suggests that the time has come to consider the possibilities of aerial defences for the British Empire as a whole, somewhat on the lines of the British Imperial Navy dear to the heart of Mr. Winston Spencer-Churchill.

There is no doubt that a move must be made in this direction ere long, and the possibility of such a development is most encouraging to aeroplane constructors in this country, for obviously if our colonies and dependencies decide on the organisation of adequate aerial forces, machines must be bought in fairly large numbers from British constructors. Ultimately, no doubt, machines will be built locally, but even then engines and parts will be bought in quantities, and there will be opportunities for British firms to establish subsidiary works in the various countries which are equipping themselves with a flying corps.

Already a move has been made in this direction by the Australian Commonwealth, whose Government has engaged two engineer-pilots to go out and superintend the forming of an aeroplane workshop and to train pilots. Whether this means that the Australian Government intends to build its own machines or not, is hard to say, but it seems quite probable that a goodly supply of machines will be bought in this country, and that the two engineers will merely be called upon to establish a government repair shop and experimental works analogous to our Royal Aircraft Factory on a small scale.

Australia does not advance rapidly, despite her motto, largely because she is governed on a strictly democratic principle by well-meaning mediocrities, but the opportunity always finds the man, and no doubt in the near future some Australian politician will arise to do for that country what Colonel Seely has so ably accomplished here.

South Africa also appears to be waking up, and last week a paragraph went the rounds to the effect that General Beyers, the Minister of War, has followed Australia's lead, and is about to engage a couple of pilots who are to construct the beginnings of an air corps. Why he should find it necessary to do so when he has, in Messrs. Compton Paterson and Driver, two of our best pilots already in the country, is not quite clear, but perhaps they may see a bigger future for their own concern by remaining outside direct Government employ and working in conjunction with the newcomers when they are appointed. In South Africa there are great possibilities for aviation, and in the event of the rising of the blacks, which seems to be a distinct possibility of the future, in the view of most South Africans, the aeroplane and dirigible would be of the greatest possible service, and would give the white population much the same advantage which they once possessed when they alone owned modern rifles.

In Canada the apparent need of aeroplanes is not so great, except for the training of Canadian pilots to assist our own Flying Corps in time of the Empire's need, but the writer happens to know that the Canadian military authorities are keeping very closely in touch with modern developments in aviation, and doubtless there will be much doing in the Dominion before long, apart from the sporting side of flying, in which the vast expanses of prairie, lake, and river offer great opportunities for aeroplane and aero-hydroplane alike.

India, as usual, is years behind the world. As an Indian officer put it to the writer recently, "India has been asleep for three thousand years, and you cannot expect a little thing like an aeroplane engine to wake her up." Nevertheless British officers of junior rank in India seem to be singularly alive to the great possibilities of aviation for the Indian Army, and British regiments in India have supplied pilots out of all proportion to the total number of British officers in India. Strangely enough the senior officers in India seem to have been affected by the atmosphere of the place, for apparently no encouragement is given to those officers who have already taken their certificates at their own expense. No offer has been made to refund their £75 tuition fee, as has been done with officers at home, and though one gathers that a sort of committee has been formed to study the question of aviation, and that a sort of adviser on aviation to the authorities has been appointed in a sort of way, nothing definite is being done. Again, there is the opportunity waiting for the man, and perhaps ere long a Henderson may arise even in India. Here, as in South Africa, there is the colour question to consider, and to make it worth while for our people to act quickly and thoroughly.

It is not so long since the authorities in Calcutta had a very bad attack of nerves, which resulted in such lamentable exhibitions as the Lieutenant-Governor, on his arrival in the city, driving in hot haste and a closed motor-car through the streets, and dashing at full speed through the gates of his residence, which were immediately slammed behind him. Something of a change from the slow and stately entry on horseback before a lowly and reverent populace, to which a firm hand in the governing of the people had accustomed us. Perhaps it has not occurred to the authorities that a few squadrons of aeroplanes, and a

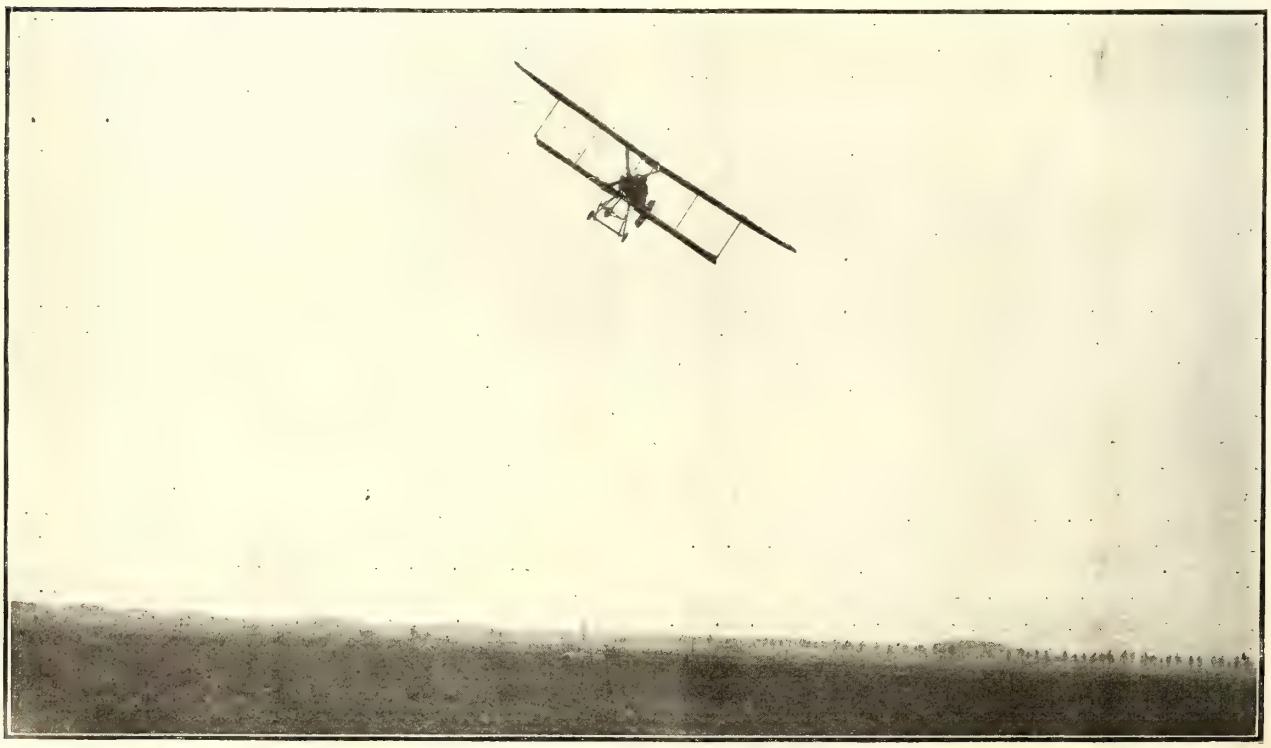
few quite small and cheap dirigibles, piloted exclusively by British officers, might do something to restore that prestige which the familiarity that breeds contempt has done so much to destroy.

In our smaller Crown Colonies there is also room and need for aeroplanes. Big, armed aero-hydroplanes are as necessary as gunboats in time of war, and would probably be more useful than most of the obsolete ships which do duty in the out-of-the-way stations.

Perhaps when Colonel Seely has got our Royal Flying Corps scheme in running order he will have a look round the rest of the Empire and see what he can do. Or, since unfortunately—so far as he personally is concerned—we are like to lose him soon, judging from the political situation at the moment, let us hope that the next party to come into power will supply a Minister equally enthusiastic in the cause of aviation, who will continue and develop the good work he has so well begun.

RESULTS OF THE MILITARY TESTS UP TO SATURDAY, AUGUST 10TH.

Official Number.	Name.	Pilot.	Assembling. Time. hrs ms. secs.	Crew.	Climbing speed to 1,000 ft.	Comparative Wind Speeds in High Wind Test. Max. & min.	Average Flying Speed. Fast and Slow Tests.
1	Hanriot	Bielovucic	14 43	(5)	3 min.	25—14	
2	Hanriot	Sippe	22.58	(5)	3 min.		74.6—66.6
3	Vickers	Macdonald	53.30	(6)			
4	Blériot	Perreyon	59 57	(4)	4 min.	28—15	61.1—52
5	Blériot	Perreyon	1.27. 0	(4)	8 min.		
6	Avro	Lieut Parke, R.N.	14.30	(6)		28—15	
10	Coventry	Perry or Raynham	1 51.45	(5)			
12	Bristol (bi)	Gordon England	54.15	(4)			
13	Bristol (bi)	Gordon England	1.32. 0	(4)			
14	Bristol (m)	Busteed	17.52	(5)		31—15	
15	Bristol (m)	Pixton	23.35	(4)			
16	Flanders	Raynham	40. 0	(6)			
17	Martin-Handasyde	Gordon Bell	1 33. 0	(4)		34—16	
19	Mersey	Fenwick	4.25. 0	(3)			
20	British Deperdussin	Lieut. Porte, R.N.	2 0.55	(5)			
21	British Deperdussin	Védrines	7.15. 0	(5)			
22	Maurice Farman	Verrier	9.29. 0	(5)	7 m. 1st trial 4m. 50s. 2nd trial	29—14	55.2—37 4
26	French Deperdussin	Prévost	1 56. 0	(4)	3 min.	29 5—13	69.1—59
31	Cody	Cody	1.35. 0	(6)	3½ min.	27—14	72.4—48.5



Mr. W. B R. Moorhouse flying a Brégue't biplane at the Aerodrome of La Brayelle, Douai.



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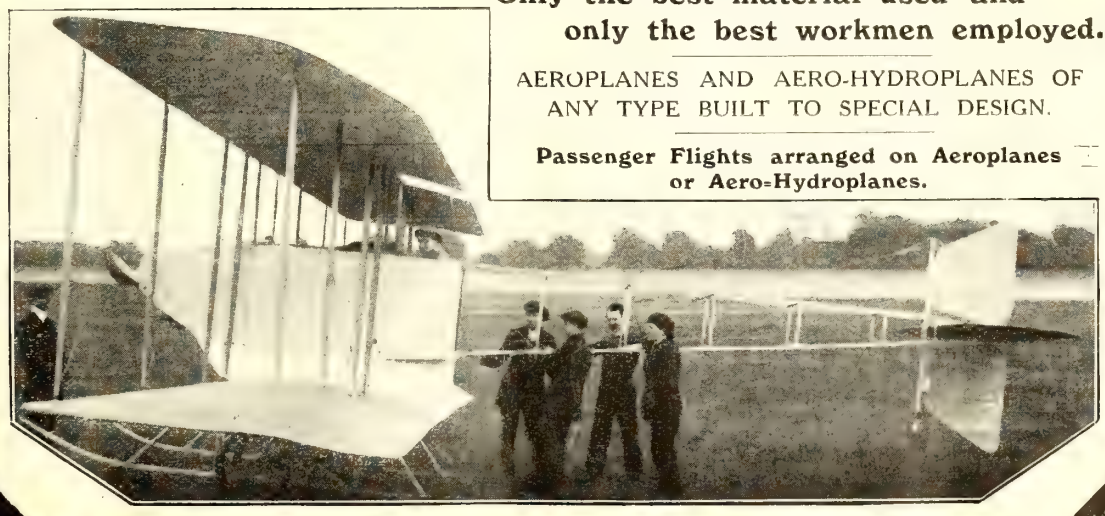
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Transport and the Aeroplane.

BY W. E. de B. WHITTAKER

The prevailing impression amongst many of those who sit at home and read pleasantly-written accounts of warfare past and present is, apparently, that battles are mutually arranged between the combatants and that what comes before or after matters extremely little. How many people ever think that, war or no war, a soldier must have food to eat and time in which to eat it? Who gives any thought to the immense complication of work necessary to bring the supplies of an army in the field? A battle between unsteady bands of leaden soldiers on a nursery table is nearer to the thoughts of the public than is the grim scientific reality.

I reiterated last week the time-worn maxim of war that the efficiency in action of any one corps depends on the homogeneity of its relation to all other corps engaged. But though unity of action is paramount in war, yet no corps will fulfil its duties to other corps unless it is in itself also of high efficiency. The efficiency of the parade ground, or of a field of battle, is again insufficient alone. It is essential that the means of conveying that corps to its position in the battle line shall be as perfectly organised as may be. But before transport can be organised it is necessary that its form be decided.

The means of conveyance for food or ammunition are obvious. No transport officer is puzzled as to the transmission of tinned meat or maxim guns. It is all laid down in the text-book. But the advent of the aeroplane brings new problems to him as it does to the G.O.C. There is nothing in precedent as to the transport of a heavier than air flying machine. There is no certainty as to whether it requires means of conveyance at all.

There are in this question, as in most others, two well-defined views. One class of capable aviators contends that as an aeroplane is intended to fly it should also fly when an army is on the march. The other class goes to the opposite extreme and, knowing that the modern aeroplane is of fragile construction and brief life, argues that for the shortest marches it is essential that each machine should be packed in a strong case. Both views are probably wrong.

To take the first case—that aeroplanes should be flown from place to place on every occasion. A French army of, say, three army corps leaves Paris with the intention of marching on Berlin. The French frontier will be, it is presumed, guarded by the same number of French troops as in times of peace. That is, the army of the frontier will have its own aeroplanes at work. The railways from Paris to the frontiers must, for the purposes of argument, be treated as non-existent. The army leaving Paris will, therefore, have an unthreatened march of at least 250 miles before getting into touch with the enemy. Its rate of march would certainly not exceed two and a half miles an hour for eight hours a day. The army, therefore, marches in one day over a distance which can be covered in flight by the average aeroplane in less than half an hour. As all the aeroplanes attached to a field force can hardly be used at once as scouts in friendly territory, the great majority of machines will be compelled to fly the day's march in a few minutes at the beginning of the day, then await the arrival of the slower-moving bodies, or else wait until the evening and then rejoin the main body of troops after the same brief flight.

The only other alternative, which will hardly commend itself to even the most assiduous of military aviators, is to keep pace with the troops by flying above them in large circles. No good purpose can be served by sending forward a large screen of aeroplanes when it is known positively that the enemy is far out of touch. It seems obvious, consequently, that aeroplanes must either be packed into cases for road transport or else partly dismantled to be towed by motor cars.

The first system is the better, as the unevenness of road surfaces is in the second instance likely to unduly strain the fuselage and chassis of the towed machines. The cases are at the same time an excellent protection against the weather.

On the other hand, it is not seriously suggested that aeroplanes in the theatre of war shall be packed for transport from place to place. The work of the aerial scouts will be sufficiently extensive to make it unnecessary for their machines to be moved by road. The area over which a general officer can retain an intimate control has extended greatly during the last century, but, even so, one doubts whether he can adequately direct a battle line of more than fifteen miles in extent.

In the Russo-Japanese War it is true that in one or two actions the front extended indefinitely over a space



M. Verrier and Captain Dawes just getting off on the Maurice Farman before the Members of Parliament at Lark Hill.

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of one hundred miles. But in actual fact, the opposing G.Os.C. in C. retained only the mere skeleton of control of the strategical dispositions of their own forces. The individual army corps commanders each made their own tactical arrangements and fought what were in essence separate battles.

Thus the one great action was made up of perhaps eight or nine separate battles of some magnitude. Each army corps would have its own aviation section entirely independent of those employed by the staff of the G.O.C. in C.. Thus it will be unnecessary when in the theatre of war to transport aeroplanes from point to point except so far as replacements are concerned. All necessary movements could be made by way of the air.

Whatever opinions may be held as to the transport of aeroplanes, there is no question that each machine shall be capable of rapid compression for conveyance if necessary. It will not be an infrequent happening in time of war that an aeroplane will be put out of action by engine failure or any other temporary disease of the structure. Is such an aeroplane to be left derelict for a benign enemy to repair and use? If not, it is necessary that some form of transport should be devised. It cannot be left to chance. As each article needed in war time has its own transport arrangements, and as Carter Paterson's business arrangements do not extend to war service, it is essential that there shall be special aeroplane wagons.

Unless each aeroplane has its own case, which would only cause confusion, each should be capable of reduction to a common size and form.

The Royal Flying Corps.

From the *London Gazette*, August 2nd :—

War Office. Special Reserve of Officers.

Royal Flying Corps.—Military Wing : C. G. Bell to be second lieutenant (on probation), August 3rd.

Naval Wing : Lieutenants C. E. Risk and I. T. Courtney, Royal Marines, have been appointed to the *President* for course of aviation at Central Flying School, to date 17th inst.

Engineer-Lieutenant E. F. Briggs, who was appointed to the Aviation School at Eastchurch on May 21st from the battleship *Superb* has been awarded his pilot's certificate by the Royal Aero Club on carrying out the qualifying flights on a Short biplane.

French Military Aviation.

Lieutenant-Aviator Pierra, on a Henry Farman biplane (Gnôme motor), left Reims on July 24th, and flew without a stop to Crotoy. Later in the day he flew by Lille and Douai to Bavay, near Maubeuge. Here he was kept by bad weather for three days. He then flew by Hirson and Mézières back to Reims. The total journey of the three days was 800 kilometres in length. In its course he reconnoitred the Belgian frontier between Dunkerque and Mézières.

Lieutenant-Aviator Sensever, of the Douai aviation centre, left that place on August 3rd on a Bréguet biplane (Gnôme motor) for Crotoy. His engine forced him to descend at Trouville, where he remained until the evening of the 5th. Despite the high wind, he flew to Crotoy, where he landed after a very stormy voyage.

It is intended to form a central school of aeronautics which will in itself combine two existing institutions. Its topographical position is not yet clearly stated. The centre will be divided into four sections—(1) A higher school of aeronautics and mechanical construction (already in existence); (2) a school of pilotage; (3) a central laboratory; (4) the Saint Cyr experimental establishment (already in existence). The officers of this school are yet to be appointed.

A military commission under the command of Colonel Destouches accepted, on August 10th, delivery of four Gnôme-engined Hanriot monoplanes for the Army.

Lieutenant-Colonel Estienne made some test flights at Buc, on August 9th, on a small Gnôme-engined Henry Farman biplane. He was satisfied.

Lieutenant-Aviators de Lussigny and Césari have both made the qualifying flights for the military brevêt on Maurice Farman biplanes, the former by a flight from Buc to Orleans and on the Chartres and back to Buc, and the latter by a flight from Buc to Mailly and back.

Colonel Bouttieaux made a flight, on August 1st, with Lieutenant de Conneau on the Donnet-Lévêque hydro-biplane.

The escadrille of Blériot monoplanes commanded by Lieutenant-Aviator Bellemois, which has been flying on the eastern frontier, has now returned to Etampes after an absence of thirty-four days.—W. E. de B. W.

French Naval Aviation.

Enseigne de Vaisseau Cayla damaged the Voisin hydro-biplane (type Canard) in driving on to the strand at Saint Raphaël on July 31st. The pilot was uninjured.

On the same day Enseigne de Vaisseau Delage made a long flight on a 100-h.p. Gnôme-engined, two-seated Nieuport monoplane, with Lieutenant Hautefeuille as passenger, over the bay at Saint Raphaël.

The aviation mother-ship *Foudre*, the manœuvres having concluded, returned on August 2nd to Saint Raphaël. In the morning Enseigne de Vaisseau Fournier made a flight of an hour on the Henry Farman hydro-biplane. Enseignes Cayla and Delage were also out on the Voisin and Nieuport machines.—W. E. de B. W.

Austrian Military and Naval Aviation.

The Austrian Ministry of War has ordered thirty-four additional aeroplanes. The Ministry of Marine has accepted delivery of two hydro-aeroplanes.

Lieutenant-Aviator Javor was seriously injured on August 5th at Weiner Neustadt. His aeroplane overturned when close to the ground.—W. E. de B. W.

German Military Aviation.

Sergeant-aviator Lachmann, who was seriously injured at Doeberitz on July 23, after a bad fall, died on August 6th.

Lieutenant-aviators Castenr and Zimmermann flew from Doeberitz to Hildesheim together a few days ago. They returned to Doeberitz on August 5th by way of Madgeburg, where they descended for a time.

The Ministry of War has accepted delivery at Doeberitz of three 100 h.p. biplanes. The maker's name is not given.—W. E. de B. W.

Russian Military Aeronautics.

A new dirigible has been constructed for the Russian Army. It is of 10,000 cubic metres, and of a speed of 75 kilometres an hour. It is named the *Albatross*.—W. E. de B. W.

Roumanian Military Aviation.

Lieutenant Popovicci, of the Roumanian Army, has concluded his tuition at the Morane-Saulnier School at Villacoublay, and returns to Roumania this week.—W. E. de B. W.

Greek Naval Aviation.

Four Grecian naval officers (Adamidis, Montoussis, Papaloukas, and Dracos) are learning to fly at the Henry Farman School, Etampes.—W. E. de B. W.

Servian Military Aviation.

On August 2nd, at Etampes, Lieutenant Miloch Ilitch, of the Servian Army, passed the tests for his pilot's certificate on a Blériot monoplane. On August 5th, Lieutenant Iboine Stankovitch and Sergeant Miodrag Tomitch also passed the tests.—W. E. de B. W.

Turkish Military Aviation.

Three Turkish officers, Salim (already breveted), Chikri, and Midhat, are still flying R.E.P. monoplanes at Buc.—W. E. de B. W.

Norwegian Military Aviation.

The ranks and corps of the Norwegian officers recently learning to fly at Buc, were in three cases wrongly given by me. In these cases I give here the correct description :—Captain Taulow (cavalry), Captain Sem Jacobsen (engineers), and Lieutenant Sejersted, all of the Norwegian Army.—W. E. de B. W.

Japanese Naval Aviation.

Lieutenants Kono and Nakajajima, of the Japanese Navy, are at present in the United States of America studying on behalf of the Ministry of Marine the hydro-aeroplane and its uses in the naval service. W. E. de B. W.

Siamese Military Aviation.

Two Siamese Army officers, Lieutenants Liang Arwood and Naï Thip, are learning to fly Nieuport monoplanes at Mourmelon.—W. E. de B. W.

Continental Notes.

There has been recovered on the shore in the vicinity of Cannes a bottle containing a fragment of paper on which was was written the words, "Je meurs faute d'essence : Bague."

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This is the second bottle found purporting to convey "last messages" from the aviator who lost his life in the course of an oversea flight last year.

M. le Marquis de Lareinty Tholozan, who has recently purchased a Maurice Farman biplane, flew with a passenger from Buc to Trouville on August 2nd. He started at 5 p.m. and landed, after two descents *en route*, at 7.10 p.m.

M. Maicon made several excellent flights in a high wind on August 4th, on a Caudron biplane, at Vichy.

The German dirigible balloon *Hausa* (Zeppelin type) left Friedrichshavn at midnight on August 4th; passed Wurtemberg 4.30 a.m., Gottingen (Bavaria) 8.10 a.m., and Bielfeld (Westphalia) at 10.20 a.m. It arrived at Hamburg at 1.55 p.m., concluding a voyage of 700 kilometres without descent at a mean speed of 70 kilometres an hour.

M. Simon, the master of aerial acrobatics, has been making flights during the last fortnight in Roumania. He remains in the East some weeks more.

Alexander Caramanlaki, editor of *Athens Independent*, raised the Greek altitude record to 2,140 metres on August 6th. He made the flight on a two-seated (side by side) Blériot monoplane.

M. Bathiat, as one of the tests for his military brevêt, flew on August 6th, from Issy les Moulineaux to Mourmelon on a Sommer monoplane. His journey took 1 hr. 7 min.

M. Gilbert, on a Sommer biplane, makes daily flights at Vichy, sometimes with passengers and sometimes without.

The I.C.S. Tour.

Mr. E. B. Seymour Norton sends the following account of the last stages of Mr. Slack's tour:—

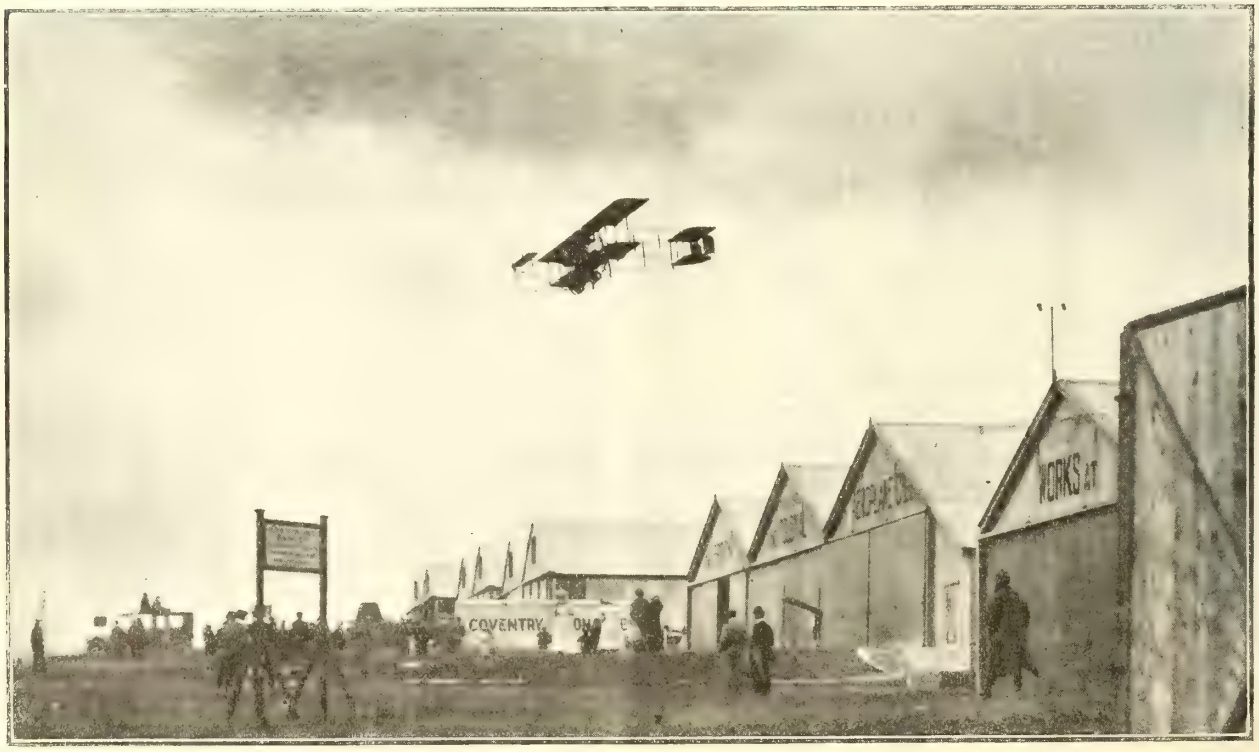
"The flying ground at Redmires, outside Sheffield, is situated on a windswept plateau bordered by a deep ravine on one side, and hemmed in by the hills on the other. It was naturally difficult to get away from this spot in anything but fine weather, while Slack experienced a sharp bilious attack that rendered him unfit to fly for a day or two. Finally, he got away on Friday evening, August 9th, at 5.55 p.m., following the Midland main line. The weather was moderately fine at the start, but near Loughborough he encountered strong wind and rain, which he sought to escape from by going more to the westward. He presently found himself near a large town, which he thought was Rugby, and therefore circled round in accordance with a previous promise to give a good show to friends at that place. As he came down lower, he saw that it was the city of Coventry, and therefore steered eastward again to make Rugby, but got astray once more and came down at Nuneaton at 7.50 p.m. Here he was most cordially welcomed and stayed the night, going on at 7.21 a.m. next morning and making the 14½ miles to Rugby in 14 minutes.

"Although the weather was propitious in London on Saturday afternoon, very bad thunderstorms were experienced at Rugby, so the flight was postponed till Sunday afternoon. Slack was much bothered by the crowds who came to witness his departure on Sunday, but was at length able to ascend at 5.10 p.m. Five minutes after leaving Rugby, he met a rainstorm, through which he flew for a quarter of an hour, but thereafter experienced the most pleasant and delightful flight he has yet made. To Bletchley, he practically shaped his course by the North-Western main line, but thence he more or less followed Watling Street, the old Roman road making a splendid landmark. Aided by a gentle following wind he made wonderfully rapid progress, picked up the Welsh Harp Reservoir when ten miles distant, and landed in the Hendon Aerodrome at 6.10 p.m. He had covered 70 miles in 60 minutes, and thus a brilliant final stage served to mark the accomplishment of a most successful circuit. During the tour, Slack had made twenty-eight separate flights without mishap, the total distance covered being approximately 1,050 miles."

The First Hydro-aeroplane on the Thames.

Quite one of the neatest sells for which aviation has as yet been responsible was that perpetrated by Mr. Frank McClean and his Short hydro-biplane on the British public on Saturday last. When all London, or at any rate all that section of it which reads the *Daily Mail*, was anxiously awaiting the much boomed arrival of Lieut. de Conneau, of the French Navy, on his French aero-hydroplane, a mere British aviator, Mr. F. K. McClean, on a mere British hydro-aeroplane, calmly flew up the Thames, and after passing by the elaborate arrangements made for Lieut. de Conneau's reception at Carmelite Street, alighted by the new County Council building opposite Westminster.

Evidently the *Daily Mail's* "Special Correspondent" was somewhat chagrined that British enterprise should have got in front of France for once in away, for he opens his description of the arrival by saying, "The crowd that gathered on the Victoria Embankment, London, on Saturday morning in the hope of seeing M. Beaumont arrive were fortunate enough not to go away *entirely disappointed*. While the French airman was kept at Boulogne by the tardiness of his mechanics



M. Verrier, with Captain Dawes as passenger, standing still in half a gale over the sheds during the Parliamentary Demonstration.

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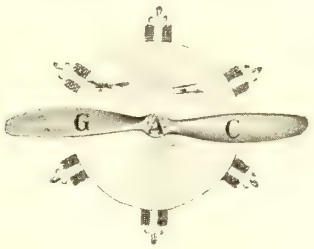
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in arriving from Paris an English flier *stole his thunder.*" Incidentally, it may be well to point out that Mr. McClean is Irish rather than English, and that the italics are ours.

Mr. McClean started from the Isle of Sheppey at about 6.30 a.m. and alighted at about eight o'clock. Strangely enough, he adopted the course of flying under all the bridges instead of over them, which certainly added to the risk so far as he was concerned, as there can have been very little room to spare under some of the older bridges. The machine he used is one of the ordinary type Short biplanes with front elevator and a monoplane tail.

Mr. McClean said that on his way up the river he had a good journey as far as Plumstead, where he got among London smoke and so had to come down low, and when approaching the Tower Bridge, where the river becomes much narrower, he found that air currents from the various buildings made it advisable to fly as low as possible.

To those who have followed aviation from its beginning in this country, it is peculiarly gratifying that Mr. McClean and his Short biplane should have achieved the distinction of being the first water-fliers to arrive in London, for not only was Mr. McClean one of the first men in this country to take up aviation, but he has from the commencement flown Short machines, and of course the Short Brothers were the very first firm to equip a proper aeroplane factory in England.

Mr. McClean has long been recognised as one of the soundest and most capable fliers in this country, but he has never brought himself before the public, for he has never had any desire for personal publicity. Recently his name became known to the outside Press, because for purely scientific purposes he made flights over the wreck of the s.s. *Oceana* to test the possibilities of submarine photography. It will, however, be remembered by those more closely in touch with aviation that it was he who lent two Short biplanes to the Admiralty, in 1910, for the purpose of training the officers who are now the senior pilots of the naval wing of the Royal Flying Corps, the actual training of these officers being undertaken by Mr. G. B. Cockburn during Mr. McClean's absence in the Pacific on an astronomical expedition.

Knowing Mr. McClean's objection to personal advertising, the writer has no hesitation in saying that this flight could only have been undertaken by him in a thoroughly sporting patriotic spirit, to show that, after all, there are British pilots who can do good flights without being on the advertisement staff of a halfpenny paper.

On behalf of British sportsmen The Aeroplane congratulates Mr. McClean and the Brothers Short on the success of a thoroughly sporting undertaking.

As a sign of the times, it is worth recording that about midday, when Mr. McClean's machine had been sitting in the river for a few hours, the police rang up the offices of The Aeroplane and asked whether the staff could give them any clue to Mr. McClean's whereabouts, as they wanted to know what he was going to do about leaving his machine in the river unattended. The inquiry was made just in the same way as an inquiry might be made about a car left in a street without a driver.

About noon on Sunday Mr. McClean started on his return journey and kept on the surface of the water under all the bridges, but when he had passed the Tower Bridge Mr. McClean turned round so as to rise against the wind, and rose to about 50 ft. In turning down stream again, the machine was caught by a gust and side-slipped into the water, apparently narrowly missing some barges and a boat. On hitting the water one of the floats collapsed, so the machine was towed into one of the docks and taken to pieces for transport to Sheppey.

The Week-end at Hendon.

Saturday's flying at Hendon was to a large extent spoilt by rain, but the Grahame-White pilots, with the help of Mr. Nardini, put up a very good show, considering the weather.

At about 3.30, Messrs. Nardini, Desoutter and Turner came out for trial runs, to see how things were after the rain, and at 4.30, after another shower, the speed handicap was run off; for some unknown reason, however, M. Desoutter was started at scratch, giving Nardini about a quarter of a lap, and Turner about a lap and a quarter. In the result, Nardini won by about a hundred yards from Turner, with Desoutter about half a lap behind.

After this proceedings were confined to exhibition flights by the above, and also by Mr. Blackburn on the Sommer, and Mrs. Stocks on the 35-h.p. Anzani-Blériot. Mrs. Stocks, in particular, was flying splendidly, handling the little machine with all the assurance of a strong-willed male with 50-h.p. in hand.

The rain on Sunday was like the punishment of evil deeds in this world—continued threats without fulfilment. In spite of the threats, however, there was a very good attendance at Hendon, and a good day's fun for those who had faith and appeared.

Flying started about 3.30, when Mr. Nardini brought out his Deperdussin for a trial, closely followed by Mr. Desoutter on the Blériot, and Mr. Lewis Turner on the Howard Wright, who were all in the air together. Then Mr. Blackburn brought out the school Farman-type machine for tests, while Mr. Gates took out the Howard Wright. Messrs. Nardini and Desoutter continued to do exhibition flights till about 7.30, while Mr. Lewis Turner carried passengers, the demand for flights being very great.

About 6.30 M. Marty came out and did some very fine flying on the 45-h.p. Caudron biplane, taking it around the country at about 1,500 ft. He had just come down when a monoplane was seen coming in from the north-west, and Mr. Slack came down, having arrived from Rugby in very good time as a finish to the I.C.S. tour.

The visitors were just getting over the consequent excitement when a biplane hove in sight from the direction of Brooklands, and proved to be the 35-h.p. Green-engined school Avro machine, with Lieut. Parke, R.N., up—a fine performance for an eighteen-months old school machine, with an engine that was secondhand a year ago.

As a finale, Mr. Gates took up the Howard Wright (of which nothing now remains but the outrigger spars) for a long flight.

Mrs. J. V. Martin's Welfare.

Writing from Seattle, Washington, on July 27th, Mr. J. V. Martin says that his wife, whose death was rumoured a month or so ago, is well and happy at the time of his writing. Mrs. Martin flies under the name of Miss Lily Irvine, which was her maiden name. Until the middle of July she was flying a Farman biplane, but since then she has taken to the Martin biplane, which photographs show to be a tractor biplane with ailerons of the Curtiss type. Mr. and Mrs. Martin hope to be visiting this country again before very long, and their old friends at Hendon will assuredly give them a hearty greeting.

Factory Activities.

A "Would-be Officer-Aviator" writes:—"On making a visit to Farnborough recently, I was very surprised and annoyed to note the activity of the Royal Aircraft Factory in openly building several machines which are supplied to the R.F.C., the R.A.F. thus competing with the unlucky private manufacturer .

"The Factory is building monoplanes now; there are two finished, or nearly so, and three or four biplanes building or reconstructing.

"The aeroplane squadron on Laffan's Plain has three efficient machines, two, the H. Farmans, just bought by the War Office, and the other a Factory biplane, *B.E.5*. It is most unfair to the private manufacturer (and to the R.F.C.) that a Government Factory with facilities and plant for manufacturing machines, such as the R.A.F. has, should enter into competition with him to supply the R.F.C. with machines."

It certainly seems hard that things should be as they are, but it cannot well be helped. The truth seems to be that the "Factory" can turn out experimental machines rather more quickly than the average independent manufacturer can turn out stock pattern machines. This is not the fault of the manufacturer in most cases, but of the British capitalist, who still refuses to finance him adequately. In several cases designers of most promising machines are unable to find the money needed to build them, while at the same time firms with almost unlimited backing waste their opportunities by building obsolete types or so-called novelties which are already out of date. As Mr. de Havilland showed on the 12th, the "Factory" biplane is more efficient than anything else at present flying in this country, and nothing but the best is good enough for our Royal Flying Corps, so if manufacturers cannot put up a machine to beat the *B.E.* type they cannot grumble if they only get orders for copies of that type, and if meanwhile the "Factory" goes on experimenting with other machines which are intended to beat their own previous designs.

The "Factory" is only doing its duty, though its methods are somewhat expensive, and the whole blame for the fact that constructors do not beat the *B.E.'s* falls on British capitalists, who will not give the needed financial support to promising efforts.

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Read what Mr. S. F. Cody, who is doing so well in the Military Aeroplane Competition, thinks of Cellon.

"Vale Croft," Ash Vale, Surrey, May 27th, 1912.

Now that I have tested my machine by flying to Hendon yesterday, reaching an altitude of 4,850 feet, encountering 3 rain-showers and traversing 3 heavy rain-clouds, after landing I examined the fabric to find that it was in perfect condition as regards tightness, though much oil had been thrown about parts of it. I have decided to varnish my next new machine with "Cellon." The last lot you sent to me is insufficient for the new machine, so will you please forward 4 gallons more of No. 17 or that that tightens most.

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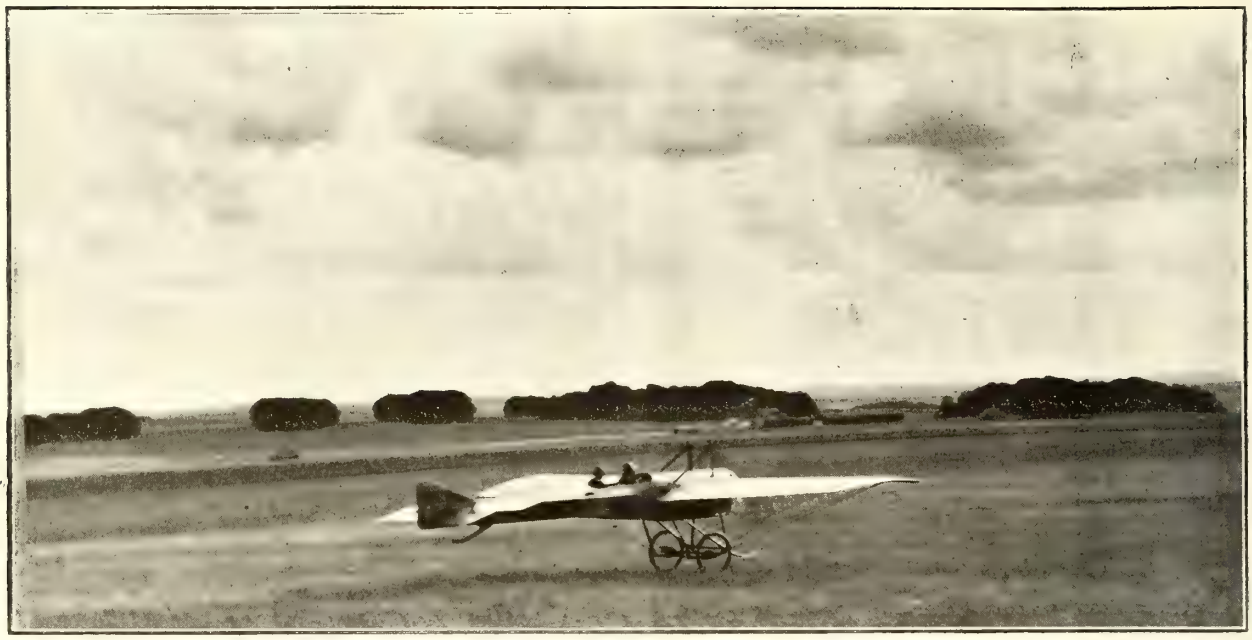
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The Military Aeroplane Competition—*Continued.*



The Plain.—M. Prévost and Captain Hamilton starting in a storm.

The second week of the tests opened with the worst of weather. On Monday, Bank Holiday, only four machines "took the air" on the Plain, namely Mr. de Havilland's "Factory" built biplane with the Vickers quick-firer on the front, and Captain Hamilton's Deperdussin, and these only for short trial flights. The little Mersey monoplane came out in the evening and flew well for ten minutes, but the wind got worse, and Mr. Fenwick wisely came down. Lieut. Parke, R.N., took out the Avro and made a very good flight of several circuits at 800 feet, and then took up Mr. Parrott, the firm's works manager, for a short trip, the machine flying fast though only getting 960 revs. per minute as yet.

On Tuesday things were even worse, for though Mr. Bell on the Martin-Handasyde bravely essayed to test his Chenu engine in the gale at 6.40, his flight was quite short, and the only other flying was done by the roof of the second Coventry Ordnance shed, which made a good attempt to fly to Bulford Camp. The tenants were told afterwards that they should not have had their doors open in such a wind, so Mr. Howard Wright suggests that in future it would be as well if the authorities were to hoist a flag to signify that it is safe to open doors, as well as signalling that it is safe to fly.

Wednesday was a better day, at any rate in the morning. The first machine out was the Martin-Handasyde, at 4.30 a.m., and even then the wind was strong. Mr. Busteed, with his inseparable companion, Mr. Harrison, as passenger, was out soon after on the No. 14 Bristol, flying steadily. Then at 6.15 a.m. M. Prévost, on the French Deperdussin, went out with Captain G. W. Dawes, of the Royal Flying Corps, as passenger, and did a fine performance. After that there was wind and rain together and alternately till the evening, when the rain stopped and various competitors came out to show their ability to fly with full load in a 25 m.p.h. wind, which is part of the tests. M. Prévost again distinguished himself as did M. Verrier, who gave one of his favourite exhibitions of throttling down his engine till his flying speed is about equal to that of the wind, so that he remains over one spot and descends slowly and vertically—a weird sight which always fascinates and frightens one, no matter how often one sees it. Mr. Cody also gave a fine exhibition of wind fighting, and seemed quite happy with his 120 h.p., of which he apparently uses about 80, keeping 50 per cent. of his power in hand for emergencies.

Mr. Macdonald brought out the Vickers at about 6 p.m., and was going strong when, owing to getting up too much pressure in his tank the petrol began to squirt out in his eyes, so he had to come down near Fargo, and did not start again. M. Perreyon, on the tandem Blériot, also made a good flight.

The closing event of the evening was the sensational and highly educational smashing up of the Avro. Lieut. Parke had been flying for about half an hour in the wind, carrying full competition load, round the circuit of Bulford, Upavon, and Stonehenge, and when coming down low, intending to land, he was caught in a *remou* which lives half-way between Stonehenge and Lark Hill. As a result he was forced down with a 20 m.p.h. wind behind, so that he hit the ground at about 80 m.p.h. His landing was perfect, but before the machine had time to slow down, one wheel hit a huge molehill, the towing wire to that wheel broke, the wheel swung back and broke the spring axle, the broken end of the spring and the skid ploughed along through rough ground, and half a dozen more mole-hills, for a hundred yards or so, and then the whole outfit turned a somersault forwards and sideways.

Major Brooke-Popham at once flew out to the wreck on one of the Army's Avros, only to find Mr. Parke calmly examining the damage. As usual, Mr. Parke was wearing a helmet and an Avro safety belt, so that he went over comfortably with the machine, and remained suspended by the belt till he unhooked himself, opened the door of his little cabin, and walked out unhurt.

Most of the machine was badly broken, except the left wings, but the point particularly worthy of note is that the closed cabin round which the rest of the machine is built was absolutely intact, neither the passenger's nor pilot's seats or leg-bars being even bent. There is certainly a great deal in the idea of starting off by building a strong cabin for pilot and passenger, and building everything else on to it, so that the other parts crumple first. One might suggest that a wicker-work lining to the cabin would add still further to the safety, as it would not splinter in a bad smash as wood panelling does.

On the whole, the accident is not a bad thing for Mr. Roe, for it has demonstrated the safety of his machine, and he will have it back, ready to continue its tests, in a week at most.

The Parliamentary Day.

Thursday was to be the great day of the competition, for in the afternoon an assortment of politicians were to come from town in order to be impressed with the importance of Aerial Defence (with a capital A and a capital D), but the serious work of the competitors was done in the morning.

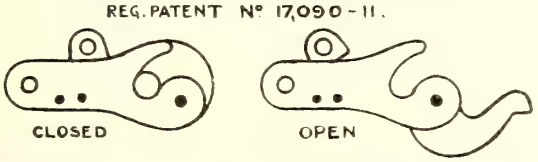
M. Prévost took out the French Deperdussin with Captain Dawes and a full load for its speed tests at 5.50 a.m., and I gather that it was officially timed to do 63 m.p.h., though unofficially an accurate observer timed it at 68. Certainly its speed seems somewhere well over 65 in any case.

At 6.12, Mr. Busteed took the Bristol through its climbing test. Lieut. Porte, R.N., did a good flight on the British Deperdussin with the 100 h.p. Anzani, and Mr. Sopwith

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brought out the Coventry with the 100 h.p. Gnôme, which for some unexplained reason refused to climb more than 50 ft.

During the some period Captain Hamilton was out on the Army Deperdussin. Major Brooke-Popham went off to Wareham on the Army Avro, and Lieut. Wadham, a newly joined officer of the Royal Flying Corps, showed notable ability on an ancient box-kite. Then the usual gale got up, and there was time to look round at the general progress.

The mysterious Aerial Wheel was still apparently in process of manufacture.

The Pigott biplane was being assembled. This is a tiny biplane with a 35 h.p. Anzani, and a span of only 23 ft. The pilot sits so that he looks *over* the upper plane. Though obviously it cannot carry the load for a 4½ hours' flight, there is no reason why it should not fly, and fly well, and it is certainly one of the prettiest little pieces of work I have seen. The machine has distinct possibilities, but I fear its centre of gravity is too high, and it may be very tricky to handle.

The Handley Page monoplane was rapidly approaching completion, and a very fine piece of work it is, as also is the British Bréguet, which looks as if it ought to give very low head-resistance with the engine lying horizontally, though I have doubts about the efficiency of a bevel drive for this work.

During the morning an impromptu drumhead court-martial of constructors was held on the representative of the *Daily Mail,* because his paper had stated that the Cody was the only British machine in competition, that the Avro turned a somersault in the air before smashing up, and that Mr. Parke was pinned down beneath the machine; all statements damaging to the Avro and other British constructors. However, he was honourably acquitted on explaining that he was not his own editor.

Mr. Cody, whose chances of winning a big prize look better and better, impressed on me that his official climbing speed was taken during his three hours' flight, when he was not forcing the machine up, but just letting her take her own angle. The official rule, of which he was ignorant at the time, reads: "Credit will be given for the rate of climbing effected in the first 1,000 ft. of the 3 hours' flight test." However, competitors are allowed a special climbing test, if they wish, and he is pretty sure to score over this.

For the benefit of visitors, I may mention that the best place to feed is in the *Daily Express* enclosure just behind the sheds. The accommodation is quite good, and the food is excellent; so much so that I saw several constructors going there instead of to the "contractor's mess" for which they had already paid. The *Express* deserves thanks as a public benefactor.

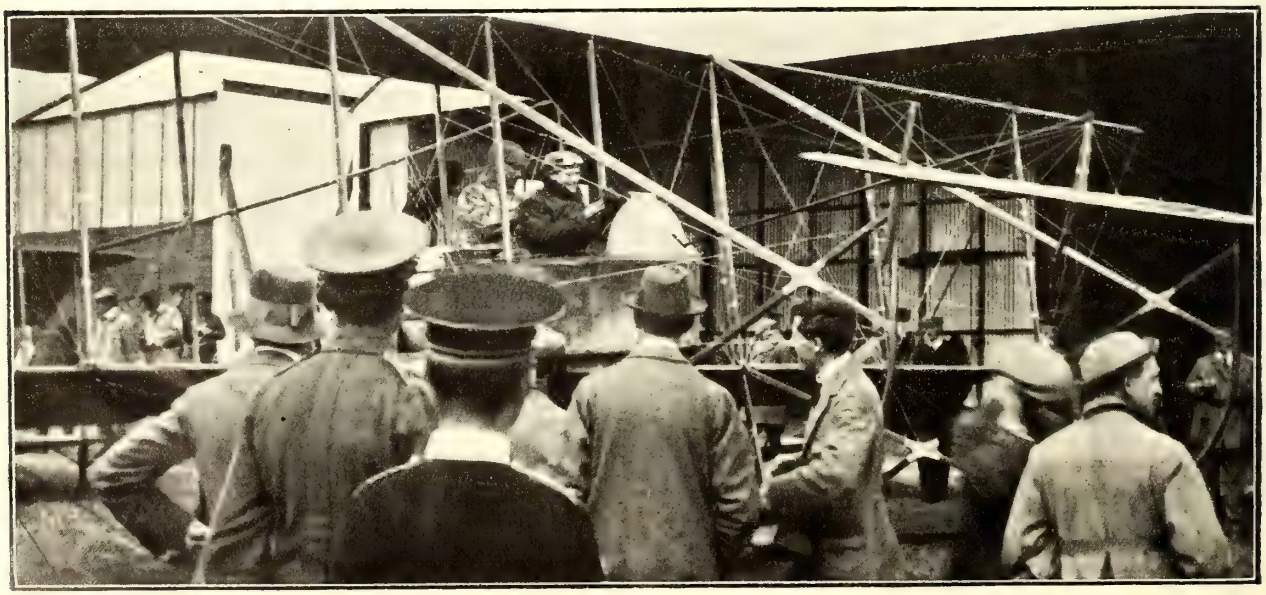
About 4 p.m. there arrived a motley crew of Members of Parliament and Government protegés in the shape of assorted Orientals, Dagos, Dutchmen, and Scandiwegians, who were told off in batches to be shown round by the long-suffering officers of the Royal Flying Corps. Happily, most of them lost their own particular bear-leaders after a little while, so the infliction did not last last long. Thereafter they gathered in a mob round every machine which came out, crowding round like a lot of Bank-Holiday trippers, asking silly questions as to what the fan in front was for, why the man turned it round, which was a monoplane and which was a biplane, and so forth; all the old questions which every aeroplane mechanic has been answering for the last three years. I confess I have never had a high opinion of the ability of our average Member of Parliament to tackle a "general knowledge" examination, but I hardly thought that his general ignorance was so deep as some of the questions I heard would indicate. N.B.—They were not *all* members of the Ministerial party who came down.

However, quite a large amount of fine flying resulted from their visit. The first out was the indefatigable M. Verrier, with the equally indefatigable Captain Dawes as passenger, on our old friend the Maurice Farman—which, incidentally, is the same one which has entertained us for so long at Hendon. The wind was so strong that they got off in about 25 yards, and went up in one steady climb to 800 or 1,000 ft., came down wind behind the sheds, and then proceeded to do the habitual soaring act onto the roofs, finally opening up and landing just over the heads of the crowd in front of the Bristol sheds. Some day that engine will refuse to pick up, and a gust will come along at the same time, and there will be a very nasty *mélange* of Verrier, biplane, and spectators. In the words of the small child who was being annoyed, "I wish someone would tell him to don't."

A few minutes later Mr. Gordon Bell brought out the Martin-Handasyde, started in great style, and climbed steeply to 50 or 60 ft. Then the Chenu stopped suddenly and he glided down equally steeply, disappearing entirely in a hole in the Plain. Great excitement of intelligent legislators, who had never seen an aeroplane land with the engine stopped. Rush of crowd to scene of tragedy bravely stemmed by officers of R.F.C., who assured them that no harm was done, and endeavoured to explain why. It turned out to be the usual Chenu magneto trouble. Whereupon a criminal bystander suggested that, in view of the refusal of the engines in the second Coventry and in the Martin-Handasyde to go any distance from their own sheds, these motors should in future be known as the "*Chez nous.*"

Following this flight, M. Prévost, on the French Deperdussin, gave a wonderful exhibition of right and left banked turns, quite one of the prettiest flights I have ever seen, and apparently without being in the least worried by the wind. This flight really impressed even the hardened aviators of the R.F.C., and so was well worth doing. It seemed rather unfair to expect competition machines to turn out and entertain a lot of politicians, who do not know that a *vol plané* is not something to eat, like a *vol au vent,* and had no idea that it was not perfect flying weather.

Mr. Busteed did a fine high flight on the Bristol. Mr.



M. Verrier and Captain Dawes getting ready to go out and entertain the Members of Parliament.

Sippe and M. Bielovucic performed prettily on the Hanriots, both making very clever landings, and M. Perreyon took up Captain Dawes—*toujours le Capitaine Dawes*—on the tandem Blériot, and gave him a big shaking up during a puffy squall, which he weathered cleverly, and finished with a beautiful landing.

The last competitor out was Mr. Macdonald, with one of his mechanics, on the Vickers, who flew high and well far out over the Plain, and finished with a splendid landing after an alarming start.

Thereafter there was much fine flying by the R.F.C. Captain Hamilton on the Deperdussin, Lieut. Fox on the old de Havilland biplane with the quick-firer in front, and Lieutenant Barrington-Kennett on the Nieuport, all showing that our officer-aviators are every bit as good as the professional pilots. And then, just to put a neat finish on things, Major Brooke-Popham arrived with a passenger, apparently from nowhere, but actually from Wareham, on the much-travelled Army Avro.

And then the crowd of legislators and aliens took themselves off, much enlightened—presumably—by a fine display of military flying.

One hopes that the Parliamentarians may have been sufficiently impressed by what they saw to realise that the proper equipment of the King's armed services is slightly more important than are their petty insincere squabbles as to whether mistress or maid shall lick stamps or whether one part or other of the King's Dominions shall be given local self-government, ecclesiastically or politically. Perhaps the show may have awakened in some of their little self-seeking minds a momentary vision of the meaning of "Empire."

A Big Day's Work.

On Friday, despite occasional rain-storms, the weather was better for flying, and a huge day's work was got in. Many competitors were out before 6 a.m., one of the first being M. Perreyon on the Blériot tandem, who did an officially timed speed test and made an average of 72 m.p.h. with full load.

Mr. Macdonald had the Vickers out twice. The Viale engine on this machine has a strange disease which brings undeserved criticism on the machine itself. When ready to start, the engine will fire perfectly on all seven cylinders, but as soon as it gets in the air one, and sometimes two, cylinders cut out, and for as much as a minute she flies short of power, with the result that after her first jump she seems very unstable. Then the erring cylinders pick up again and she flies very strongly, only unfortunately the onlookers see the wobbly start and omit to notice the sudden improvement. With an engine which was more reliable at the start she would do really well, and she is worth special attention, because she is the only all-steel machine of British design.

Mr. Cody was busy all day experimenting with different propellers to find out whether a 10 ft. or a 15 ft. suited his machine best for speed. Finally, at 6.15 p.m., he went over to the measured distance for the speed test, only returning when it was black dark. Unofficially it was stated that his speed was about 68 m.p.h., but as one stretch was done 14 secs. faster than the other, he claimed that his engine was wrong, so he asked for another trial to be allowed him later on, and got consent for it.

The Coventry Ordnance with the Gnôme was out about 5.30 a.m. for 20 mins., but still refused to lift quickly for Mr. Sopwith, and in the evening Mr. Raynham took her out with no better success, though she flies nicely enough. However, Mr. Manning seems to have discovered the trouble, and she should do well this week and next. Meantime, the front of the crank-case of the *Chez nous* engine in the other Coventry is going to France for alteration of the magneto drive. I heard also that Martin and Handasyde have given theirs up as a bad job, and are putting in a Renault this week. The A.B.C. engine for the Flanders was to have been down by now, but after a test run on the bench, a mechanic, in making an adjustment, smashed the crank-case with a hammer, so that means more delay. Verily these three British firms, whose machines have perhaps the best workmanship in the whole competition, are not over-favoured by luck.

Another unlucky machine is the British Bréguet, which went out about 6 a.m., made a short test of flight, and broke a wheel in landing. By-the-way! One of the political people who were here on Thursday, full of the military knowledge of the average M.P., remarked that the Bréguet was the only practical military aeroplane he had seen, for it was the only one properly armoured. N.B.—The "armour" is the 24 gauge aluminium sheeting with which the body is covered. It makes a very pretty clean job, and diminishes skin friction, but as armour it would hardly stop a buckshot from a catapult. Fortunately for him, Mr. Parry Williams, of Bréguet Aeroplanes, Ltd., possesses a sense of humour, and is by now quite impervious to "leg-pulling" on the subject of armour.

About 6.30 a.m. Lieut. Porte, R.N., turned out to do trial flights on the British Deperdussin with the 100 h.p. Anzani, which flew uncommonly well. Having satisfied himself as to its lifting capacity, he came in after 20 mins. with the intention of getting it and Védrines' machine through all their tests together as soon as a decently fine day arrives.

Between 6.35 and 6.53 a.m. three Army machines came in from Farnborough, the *B.E.1.*, Bréguet, and *B.E.4.* all flying beautifully. Before they arrived, Mr. Gordon Bell, who left Brooklands at 4.50 on the Martin-Handasyde with the Antoinette engine, had come down at Bulford Camp, the other side of the Avon Valley, with a leaking water joint, covering the 70 miles or so, against what wind there was, in 1 hr. 10 mins.

Another visitor was the *Gamma* airship, which arrived at 9.10 a.m., before the wind got up, and anchored to a nose-cap in a hollow below the sheds, leaving again just about 1 p.m. with the wind behind. Major Maitland, commanding the airship squadron at Farnborough, handled the machine very prettily, but, after all, the poor little thing does seem a waste of time and money.

During the morning M. Prévost took the French Deperdussin over behind Fargo and landed in the "ploughed field," in which the judges had been very lenient to the competitors, the "plough" being a little scratching of the surface, instead of really deep ploughing of the ridge-and-furrow kind. Of course he passed that test easily.

The little Mersey monoplane went out for a few minutes, tuning up. Mr. Swaby is anxious that the machine should not be regarded as a finished product, as it is their first effort, and is entered in the trials so that they may be able to give a demonstration of its capabilities in close comparison



Picking up the wreck of the Avro on Thursday morning. Mr. Roe may be seen in the uninjured cabin.

with other machines. The military men who have seen it seem to recognise its suitability for their work if built in a larger size, with more power, and improved in detail, as it will be if the partners have the necessary financial support for their future work.

Mr. Sippe was out early for his speed test, doing 74.6 m.p.h. with full load, this being the biggest speed accomplished in the trials so far. He also went for his gliding test, but the result was not officially made known up to Saturday night.

I gather that the Aircraft Factory has evolved some brilliantly clever instruments with which to measure gliding angles. The actual distance covered in the test is neglected altogether, for this varies according to the pilot's luck in being hindered or helped by gusts. The instrument apparently works in conjunction with a barograph, showing the height at which the ignition is cut off, and the time occupied in reaching the ground from that height, the result being arrived at by working in the speed of the machine through the air during the glide. Naturally the process of working out is somewhat complicated.

Mr. Pixton has been withdrawn from the trials, owing to the Bristol biplane with the German Daimler engine not coming up to expectations. It is said that this engine is so badly balanced that in a long run it would pull itself out of the fuselage, so the machine was withdrawn, and Mr. Gordon England, who was intended to fly it, has been given the 100 h.p. Gnôme biplane, leaving Mr. Pixton without a mount. Consequently the latter went out testing one of the short-bodied monoplanes without a fixed tail. He seems to be about the only pidot who likes this type as well as the newer one with the long body. Mr. Pizey, just returned from Constantinople, was also out, demonstrating his strict neutrality in the Turco-Italian quarrel by taking up an Italian officer on a monoplane of the new type bought by that country. Mr. Busteed was testing his competition machine during the morning, this having been fitted since its first appearance with a square rudder, and having lost its shark's fin.

In the afternoon about 5.30 M. Verrier took the Maurice Farman over for its speed tests and did 55.2 m.p.h., afterwards trying for slow speed and doing 37.4 m.p.h., a pretty wide variation of speed. Late in the evening he did a gliding test, and as there was hardly any wind one had a chance of seeing the machine glide properly instead of merely hovering against half a gale, as is M. Verrier's usual habit. Its genuine glide is really quite good, and it covered a very big distance, having actually to come down rather sharply at the finish to avoid dropping into a valley far away from the camp.

Mr. Valentine came out in the afternoon on the No. 15 Bristol, which had been rebuilt after her smash in the remarkably short space of four days. He did not stay up long, and I heard later that for some reason he did not wish to take further part in the trials.

Mr. Pizey was also up on one of the old type short-bodied Bristol monoplanes, flying with his usual steadiness and grace.

M. Prévost, on the French "Dep.," also went for his speed test and did 69.1 m.p.h. with 59 m.p.h. as his slowest speed. I think he can improve on the former. He came back in the dusk and did astounding banked turns over the sheds, then went up to 1,500 ft. or so, and came down in a corkscrew, which would have been terrible to watch if anyone less trustworthy had been at the wheel. We could all see that he had a passenger with him, and various estimates were made of the probable state of the passenger's nerves when Prévost had done with him. When he landed, we discovered that the brave passenger was Major Sykes, who seemed hugely delighted with his experience.

During the evening, and right on till dark, various officer-aviators were flying in a style which would fairly beat most of the professional pilots. Captain Hamilton, on his old Deperdussin, Lieut. Fox on an aged box-kite, and sundry others on the three *B.E.* machines, went out time after time. Captain Fulton, who is now an instructor at the Central Flying School, and who brought the aeroplane company of the late Air Battalion to such a high pitch of efficiency in the dark ages before the War Office awoke to the importance of aviation, came over by car and flew an Avro biplane back to the school in a very pretty style. And as the crowd melted away one could still hear the 120 h.p. of the Cody biplane away in the dusk over the speed course banging away like a battery of quick-firers. Altogether it was a fine and impressive day's flying, and I felt quite sorry for those pilots who, instead of having the honour of helping to make history in these trials, were wasting their energies and risking their necks doing circus tricks for the amusement of holiday mobs from factory towns, and for the advertisement of the halfpenny Press.

Storm and Rain.

Saturday was a beast of a day. There is no other word for it. In the early morning it was fine, and at 5.49 a.m. Mr. Cody went off to be officially timed for an unofficial speed test, this time getting up an average speed of 72½ miles an hour, with a 10-mile wind abeam, which would naturally slow him more than a fore-and-aft wind calculated on an average consequently he expects to do something much nearer 80 m.p.h. if he can catch a calm. Almost at the same time M. Moineau brought out the Bréguet and made a short test, but put back for adjustment of the steering gear after a few minutes.

Then M. Bielovucic, more familiarly known as "Bielo," went out for his 3 hours' test, with the inevitable Captain Dawes as passenger, but came down two minutes later owing to the cap of the petrol tank blowing off, and by the time this was put right the weather did not encourage further flying.

Just about 8 a.m. Mr. Busteed went out for his 3 hours' test, but after 45 minutes' flying came down, probably owing to the weather threatening heavy rain.

Mr. Sippe, with "Bielo" as passenger, went out intending to do the ploughed field landing later on, but owing to the wetness of the ground in the afternoon he did not attempt it. I learnt during the day that an objection had been lodged against his speed test on the grounds that he did not fly at the regulation 100 ft., so he will probably go again, and seems rather likely to improve his time than otherwise. He tells me that he flew low under the impression that 100 ft. was the maximum and not the minimum height, as obviously it is easier for the timekeepers to clock accurately if a machine is flying low.

During the morning the Vickers did some furniture removing, having been drowned out of its marquee, and it is now living in the re-roofed Coventry shed, the Coventry having been put into an empty Bréguet shed meanwhile. It was more than a little amusing to see Mr. Macdonald, pilot-aviator of no small ability, driving an old Wolseley car laden high with spare parts, propellers, and camp furniture, and slithering about on the muddy grass up one side of the hill and down the other.

A really fine performance in the early hours was a flight by M. Prévost on the French "Dep." with General Henderson as passenger, the finish being a beautifully judged figure of eight glide over the sheds.



M. Perreyon and Captain Dawes on the tandem Blériot starting for the climbing test during the Parliamentary Demonstration.



Mr. Sippe landing from his high wind test on the Hanriot No. 2.

Later in the day the same machine did its road transport test. The crew took 52 minutes to dismount the wings and tail, pack them along the body, and hitch the tail-end of the body on to a car. Then M. Prévost drove the car, with the machine trailing behind, up the hill, down onto the plain, and out on to the road, the car wheels going about 40 m.p.h. in the mud up the hill, while the outfit progressed at about 8. Then it was brought back and assembled again in 50 minutes. By this time a big storm was coming up, preceded by half a gale of wind, but Captain Godfrey Paine, R.N., wanted to try the machine as his fellow judges had done. So M. Prévost gaily went out in the teeth of the wind, first with Captain Hamilton as passenger, and then with Captain Paine, each time coming down in a fine spiral, finishing with a straight glide and landing like the proverbial feather, the engine being switched right off.

I suppose I have seen most of the world's cleverest fliers at one time or another, but never have I seen anyone who handles a machine so perfectly as Prévost. Not only has he the finest of hands and faultless judgment, but he does not play tricks. Also, his personality gives one confidence in him, for he has none of the airs and graces of the "popular idol" type of flier, and when off his machine he is modest and retiring, yet always cheery and ready for a joke with those round him. Above all, he never seems to get excited about anything, and never makes a fuss before or after his flights; wherein he differs markedly from some of the star fliers who have been inflicted on us from time to time.

Be it said in justice that all the foreign aviators who have so far appeared in the Military Competition are singularly free from these faults. MM. Bielovucic, Perreyon, and Moineau are all equally quiet and unassuming, and have all proved themselves remarkably fine fliers.

We may congratulate ourselves on our good fortune in having such charming visitors, and one would like to suggest that, as a small acknowledgment of the pleasure their presence has given in this country, they and the British competitors should be entertained at a dinner by the Royal Aero Club immediately the trials are over.

I find I have omitted to state that in the early morning Mr. de Havilland took *B.E.2* out and did the ploughed field landing, for fun, rolling about after landing, and generally treating the test ground with supreme contempt.

The Aerial Wheel, which seems to provide the comic relief of the trials, has at last found a pilot, Mr. Cecil Pashley, who is quite a good little flier, having come down to fly it, or, as as he said to me, "to have a try, anyhow."

By-the-way! When the Maurice Farman was going up like a rocket on Thursday, in the teeth of the gale, a distinguished general officer, accompanied by sundry junior members of his, or someone's, family, explained lucidly to them, "You see these machines rise faster against the wind than with it—on the same principle as a golf ball."

On Saturday evening no one was out for tests, more rain was threatening, the wind was getting worse, and everyone who dared leave his machine was going off for the week-end. Those who remained behind were less unhappy than the previous week-end, for I gather that the officer in charge of camps has since then been hearing the cry of the distressed competitors, and that the contractor's mess has in consequence been flowing with milk and honey. In other words, military authority has seen to it that the constructors and their crews now have every home comfort, and a little over, whereby—like Mr. Kipling's lama—the said officer in charge of camps has acquired much merit, and there is peace in the land.



Mr. Harry Busteed gliding in over the Army sheds.

Mr. de Havilland's Wonderful Performance.

At the moment of going to press full details of Monday's flying are not available; but, in any case, one performance at Lark Hill overshadows everything else, namely, Mr. de Havilland's height record on *B.E.2.* With Major Sykes, Commandant Military Wing, Royal Flying Corps, as passenger, he climbed in an hour and twenty minutes to 9,500 ft., remaining in the air till he completed the three hours' test imposed on the competing machines. This constitutes a British record for all classes of machines for Great Britain, beating M. Salmet's 9,000 ft. single-seater record on the Blériot at Hendon last November, though it is still a long way behind Lieut. von Blaschke's record of 14,000 ft. odd on the Lohner biplane, made recently at Vienna. It is, however, probably the longest flight yet made at so great a height.

Mr. de Havilland has now passed all the tests set to the competitors, and this performance, coming after so many others, definitely places him among the world's greatest pilots.

It may be as well here to point out that the unreasonableness of certain newspaper critics who have, during the trials, reproached the competitors with not hurrying through all their tests, and have compared the competing pilots unfavourably with the officers of the Royal Flying Corps, who have turned out and flown magnificently in weather in which the competitors have preferred to stay at home. The difference is the very simple one that if a Flying Corps pilot smashes up his machine it is repaired as soon as is convenient at the expense of the Royal Aircraft Factory, but if a competitor breaks up his machine, not only has his firm to bear the cost of the repair, but the job may not be done in time for him to finish the tests, and so he may lose his chances of a valuable prize and of future orders. Consequently, every competitor is out to pass each test with the minimum of risk and the least possible wear and tear to the machine.

Bearing these facts in mind, it is the more to the credit of the French Deperdussin firm and of M. Prévost that their machine got through so quickly. But then M. Deperdussin has always been a sportsman, as witness his voting for the Bréguets to be re-admitted to the French trials last autumn, after bad luck had brought about their disqualification, and his sanctioning the daring flight of M. Prévost and Mr. Santoni on the Admiralty Deperdussin to Eastchurch, when a failure would have probably wrecked the British company which he was interested in forming, and would certainly have lost a number of valuable orders. As Mr. Massac Buist shrewdly points out in the *Morning Post,* the quickness with which M. Prévost got through the tests on Salisbury Plain has probably added ten per cent. at least to the firm's chance of winning the big prize, and that extra chance is thoroughly deserved. At the same time, those firms who have gone more cautiously to work would have scored rather heavily if M. Prévost had damaged his machine in doing some of his flights which were not absolutely demanded by the rules. Also, it must be remembered that, if the French firm had had back luck, there were still the British firm's two machines to keep the name to the fore, so that it was justifiable for them to take a certain amount of extra risk, which a firm with only one or two machines could not afford to take.

Apropos of passing all the tests, I rather gather that, if several machines come out about level on points, there may be a supplementary series of tests arranged in order to find the actual winner, though almost any further tests would probably be quite as much a test of the pilot as of the machine, which is just what one does not want. For instance, a long, high flight like Mr. de Havilland's would merely prove that the machine was efficient enough to reach the height, but it would show that the pilot was far above the average in skill and stamina.

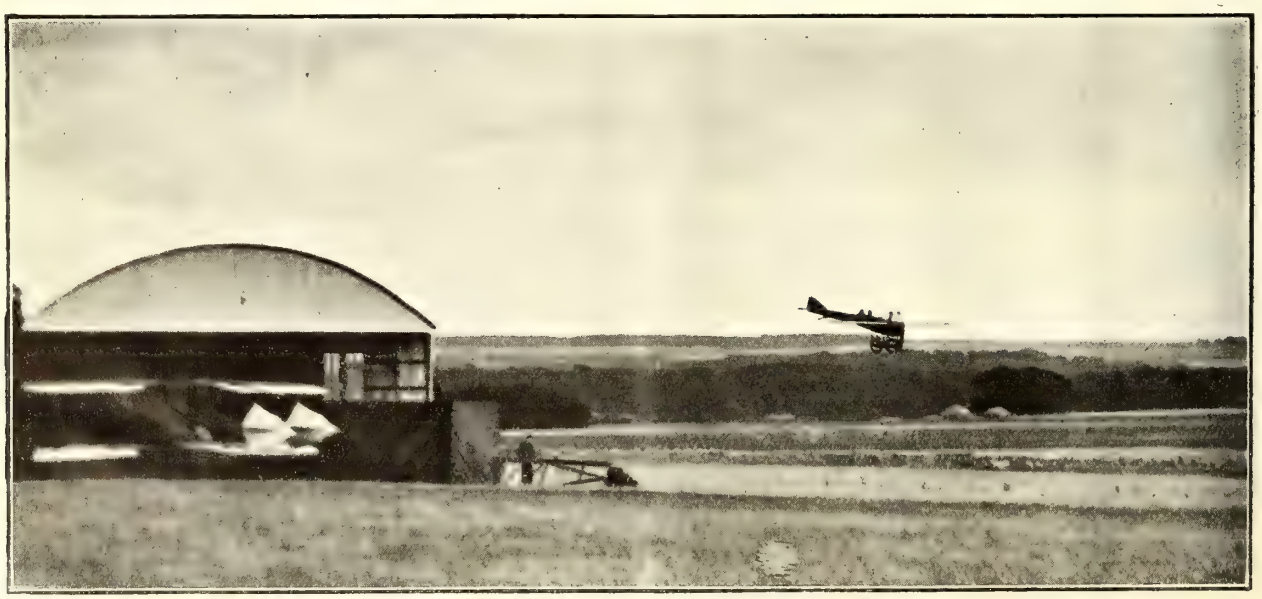
Since Saturday I learn that Mr. Valentine and the Bristol Company have definitely parted company, which seems a pity, for Mr. Valentine has done some remarkably fine flying on the old type Bristol monoplanes, and on the newer types he might have done much better. Strangely enough, though Mr. Valentine's big flights across country, his flight to Paris, and his flying generally at Hendon and in France have done much to popularise the name of the Bristol machines, somehow they did not receive the publicity they deserved, being eclipsed in the public eye by inferior performances by foreign fliers on foreign machines. Mr. Pixton is to fly the machine during the rest of the competition.

I learn also that Mr. Sopwith, who is under agreement to drive the racing hydroplane *Maple Leaf* in America, has handed over the Coventry Ordnance machines to Mr. Copland Perry and (or) Mr. Raynham, as he has to start for America on Saturday. He had hoped to get through the tests, with luck, in the first week, but the luck came not, so he had to go off disappointed.

Some idea of the general vileness of the weather may be gained by the fact that the official flag indicating that the wind made flying possible was only hoisted during 33 hours of the seven official test days up to Saturday, and the Judges are by no means inclined to wait for a calm before hoisting the flag, which generally goes up as soon as the wind gets to 20 m.p.h. or so.

Another detail of news is that the Flanders biplane was officially disqualified on Saturday, and then only because an objection was lodged against it by another British firm, which apparently has itself about as much chance of winning as has the disqualified Flanders. The Flanders crew quite recognise the justice of their disqualification, but hardly estimate very highly the sportsmanship of the objectors.

In the landing tests Blériot (No. 4) stopped in 60 yards, Maurice Farman (No. 22) in 64 yards, Deperdussin (No. 26) in 73 yards, Hanriot (No. 2) in 119 yards.—C. G. G.



M. Prévost on the Deperdussin, after finishing all the elementary tests, landing in a high wind, with Captain Godfrey Paine, R.N., Commandant Central Flying School, as passenger.

The Week's Work.

MONDAY, August 5th.

Brooklands.—Morning, no flying owing to rain, wind and thunder. Afternoon, Mr. Pashley for several circuits on Sommer.

Eastchurch.—No flying, with exception of arrival of Henry Farman biplane from France with the new 80-h.p. Gnôme, piloted by M. Noël, on its way to be delivered to the Grahame-White Company.

Farnborough.—In evening fine exhibition of flying by Mr. de Havilland on *B.E.2.*, in strong wind, large crowd of visitors looking on.

TUESDAY, August 6th.

Brooklands.—No flying throughout day. Rain and wind.

Douglas (I.O.M.).—Fairly fine, but lots of wind. Mr. Hamel gave exhibitions 11.30 a.m. Left flying ground, Douglas, at 4.30 and flew across to Peel, where he treated crowd to one of his spirals from about 2,000 ft. Returned to Douglas 6 p.m.

Eastchurch.—Lieut. Spencer Grey, R.N., arrived back on 70-h.p. Short tractor from Dymchurch, where he had flown on previous Saturday.

Farnborough.—Capt. Raleigh out on Bréguet *B.3.*, Major Burke on *B.E.1.*, Major Moss on Henry Farman, all doing long flights and flying well in strong wind. In evening Mr. de Havilland out on *B.E.2.* one flight, but wind too strong for further flying.

WEDNESDAY, August 7th.

Brooklands.—At Vickers School, in evening, Captain Stott and Mr. Geere rolling on *No. 2.*

At Bristol School, 7 p.m., Mr. Hotchkiss out alone, then with Mr. "Darracq," and Lieuts. Gould and de la Ferté, Mr. Merriam with Lieuts. Loultcheff, Gould and Cheesman, and Mr. "Darracq." Mr. Summerfield alone. Mr. Hotchkiss with Mr. Barnwell. Capt. Brabazon straights. Lieut. Arthur on single-seater biplane, and then with Capt. Brabazon. Lieut. de la Ferté in trouble. Mr. Merriam took up Messrs. Summerfield and Cheesman together on biplane and flew over to his assistance. Mr. Hotchkiss brought machine back with Messrs. Merriam and Cheesman on board.

In Monoplane Section, Prince Cantacuzène rolling and later flying straights, Mr. Cheesman rolling, Mr. Greig flying, all on Anzani monoplane.

Cowes (I.O.W.).—Despite strong wind and lumpy sea, Mr. Grahame-White out about 6 p.m. on Farman hydro-aeroplane, visiting various yachts in the harbour, including the *Victoria and Albert.* Also flying close alongside Royal Yacht Squadron.

Douglas (I.O.M.).—Mr. Hamel gave exhibition in morning and flew to Port Erin in afternoon, landed on appointed spot in front of golf club. Returned to Douglas 6.30 p.m.

Farnborough.—Towards evening weather cleared up after raining heavily all day, Capt. Mackworth on *B.E.4.*, Capt. Raleigh on Bréguet *B.3.*, Major Moss on Henry Farman, all flying well and doing several long flights. Airship *Gamma* out round neighbouring villages.

Hendon (Grahame-White School).—School out at 7.10 p.m., when Mr. Wynne made his first straights. Then Lieut. Stopford out, also for straights, followed by Mr. Hoelscher, who was doing straights with Mr. Blackburn.

At Bleriot School, in evening, Mr. Metford tried out *L.B.3.* after adjustments.

Torquay.—Successful flights by M. Hubert on Farman hydro-aeroplane during evening.

THURSDAY, August 8th.

Brooklands.—At Vickers School, in morning, Capt. Stott rolling on *No. 2* 45 minutes. Evidently a great deal of practice to be had at this school. In evening Mr. Geere on *No. 2* doing excellent straight flights; also more rolling by Capt. Stott on same machine.

At Bristol School, 4.30 a.m., Mr. Merriam out alone. At 5.30, with Lieut. Gould. Then out on Anzani monoplane. At 7 p.m., Mr. Merriam alone, and at 7.30 with Capt. Miller, Lieut. de la Ferté and Lieut. Gould. Mr. Barnwell straights on biplane. Mr. Merriam with Lieuts. Loultcheff, Parker and Playfair and Mr. Cheesman.

Clacton-on-Sea.—M. Salmet on Blériot flying over sea front and pier, scattering flowers as he went.

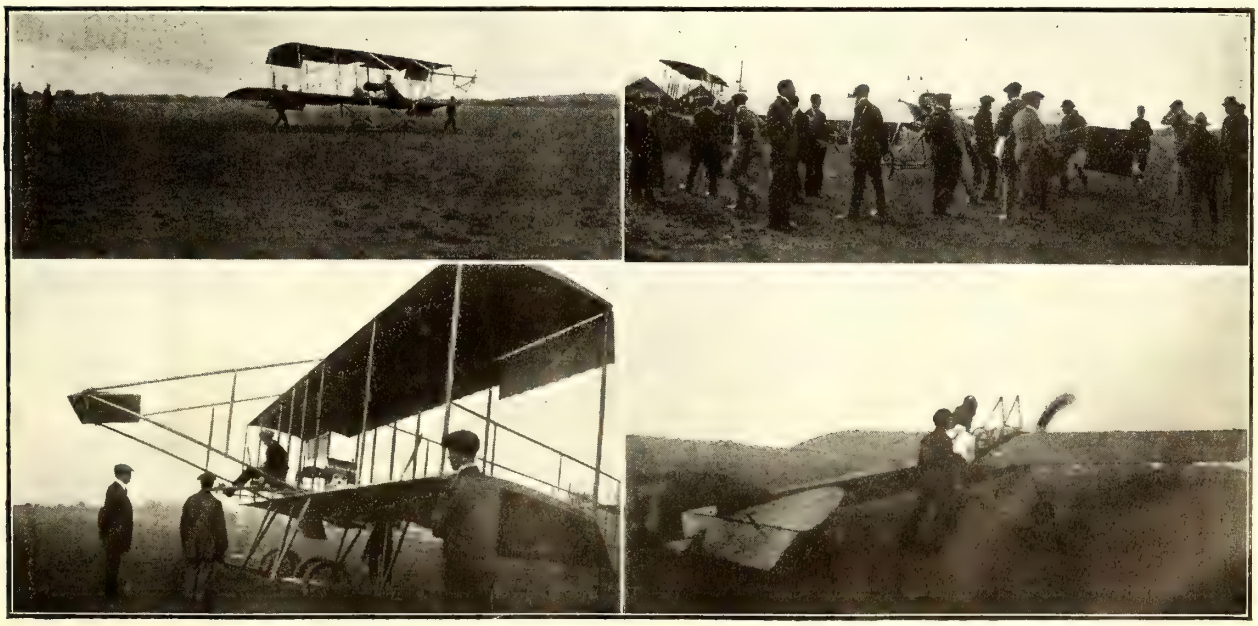
Cowes (I.O.W.).—Mr. Grahame-White made three circuits of harbour on Farman hydro-aeroplane. Mr. Travers also out for about ten minutes.

Douglas (I.O.M.).—Wind too bad to get out of Douglas ground in morning, so Mr. Hamel spent morning overhauling motor with mechanic. In afternoon about 4.30 Mr. Hamel flew to Ramsey and landed in ground 170 yards by 160 yards. Neatest landing ever seen. He landed exactly as a bird does and did not smash anything, having done a spiral down from 3,000 ft. right over the ground. Then flew over Mount Parade, 1,800 ft. high, and found an upward current which drove him up to 6,000 ft. In evening returned to Douglas.

Eastchurch.—Bréguet being assembled.

Edinburgh.—M. Marty made three flights of about 10 mins. each in gusty wind, which, however, was from right quarter for the restricted ground.

Farnborough.—Early morning, Major Moss 15 min. flight on Henry Farman. Airship *Gamma* out for several flights. In evening Major Moss 20 min. flight on Henry Farman then



Seen by a Visitor to Hendon.—Photographs by Mr. Cook of Doncaster. (1) Mr. Blackburn on the Sommer. (2) Getting M. Prévost's Deperdussin ready. (3) Mr. Turner on the old Howard Wright. (4) Signor Nardini on his Deperdussin.

several passenger flights. Major Burke on *B.E.1.*, Capt. Mackworth on *B.E.4.*, Capt. Raleigh on Bréguet *B.E.*, all taking passengers. Later Mr. de Havilland left for Salisbury on *B.E.2.* in strong and very gusty wind.

Hendon (Grahame-White School).—School out in morning for two hours. Mr. Wynne out for straights on the Sommer, followed by Lieut. Stopford. Then Mr. Wilson up for straights with Mr. Blackburn, followed by Lieut. Allen, who afterwards made some flights alone. Then Mr. Kinhardt out for straights (also with Mr. Blackburn), after which the wind became too high for further work.

W. H. Ewen School out at 5 a.m., Capt. O'Brien, Messrs. Ware and Apcar making splendid straight flights. In evening Messrs. Apcar and H. James doing straights and Messrs. Edmund and Ware good left turns.

At Deperdussin School, Lieut. Andrews out in morning on taxi, but ran into railings at the far side of ground and broke propeller and damaged engine. Lieut. Gill four circuits on racer. Lieuts. Brock and Harrison out in evening and did three turns each on brevêt machine. Lieut. Gill out on brevêt. Lieuts. Bourke and Andrews rolling on taxi; both made good progress. Gusty wind prevented further work for pupils. Lieut. Gill did straight on No. 1 machine. In evening Lieut. Chinnery two circuits on brevêt machine. Lieuts. Brock and Harrison one turn each on brevêt, both doing exceedingly well. Lieuts. Tucker, Howker and Bourke rolling on taxi and Mr. Andrews on same. All making excellent progress.

At Bleriot School, Mr. Metford had *L.B.3.* out for test before handing over to pupils, Mr. Sacchi, Mr. Welburn, and Mr. Clappen, latter experiencing some difficulty in making landing, with result that chassis suffered somewhat. M. Gandillon rolling on *L.B.1.*

Torquay.—M. Hubert out on Farman hydro-aeroplane before breakfast till mid-day. Weather too bad to fly in evening.

FRIDAY, August 9th.

R.F.C. Central School.—Lieut. Longmore, R.N., first on Short 44 with Staff-Sergt. Thomas for tuition. Capt. Fulton, R.A., on Avro No. 2 alone, and Capt. Gerrard on Short 43 with Sergeant Vagg for tuition, and later three flights with Capt. Cordner, Asst.-Paymaster Lidderdale, R.N., and Air Mechanic S. Barker, respectively, for tuition.

Capt. Fulton, R.A., made twelve flights altogether, four alone, three flights with Air Mechanic Hodgson, two with Air Mechanic Higginbottom, and one each with Asst.-Paymaster Lidderdale, and Air Mechanics Harrison and Clarke, all for tuition.

Lieut. Longmore, R.N., took up Master Mechanic O'Connor on Short 44, and then Staff-Sergt. Thomas again, who later went for his brevêt. Capt. Fulton, R.A., and Lieut. Longmore, R.N., were observers, and he took it in fine style with eleven figures of 8 and reaching a height of 300 ft. for his altitude test. He is thus first to obtain his brevêt at the school. This feat is exceptionally good, as he has only had five lessons previously.

Lieut. Longmore, R.N., then out on Maurice Farman biplane taking up Air Mechanic Collis and then Master Mechanic O'Connor, for tuition.

Lieut.-Col. Cook, R.A., on Avro No. 2 for one long solo.

At 11.30 a.m., Capt. Gerrard, R.M.L.I., one flight on Short 43.

In evening, Lieut.-Col. Cook, R.A., on Avro No. 1, flying at a good height, left school for Portsmouth.

Lieut. Longmore, R.N., on Short 44, with Master Mechanic O'Connor, then with Air Mechanic McNamara. Later Master Mechanic O'Connor out taxi-ing on same machine.

Eng.-Lieut. Randall, R.N., on Short 43 one flight.

Capt. Fulton, R.A., then arrived on Avro biplane from Lark Hill, thus there are three Avro biplanes at the school. He then made one flight alone on this machine.

Just before dark Capt. Broke-Smith, R.E., arrived on Bristol biplane *F.7.* from Lark Hill. This is the second Bristol at school.

Brooklands.—At Vickers School, in morning, Mr. Geere on *Vickers 2* for straight flights; also Capt. Stott, who now aspires to long hops. In evening, excellent circuits by Mr. Knight at about 400 ft. on *Vickers 5.* Capt. Stott and Mr. Geere again out on *No. 2.*

At Sopwith School, in evening, Mr. Lane receiving first instruction on school Farman. Capt. Ellington also out on same machine.

At Avro School, in afternoon, Lieut. Parke, R.N., took school machine across country to Staines reservoir and back, returning to aerodrome at a height of over 1,000 ft. after flight lasting 25 minutes.

At Bristol School, Mr. Merriam alone. 4.30 a.m. Mr. Hotchkiss on single biplane. Mr. Merriam with Major Ashmore, Lieuts. Playfair and Gould. Mr. Hotchkiss with Lieuts. Gaskell and Parker, and Mr. Cheesman. Mr. Barnwell alone. Capt. Brabazon. Mr. Merriam with Capt. Miller and Mr. "Darracq." Lieuts. Playfair, Gould and de la Ferté all flying alone. Mr. Hotchkiss with Capt. Miller. Capt. Brabazon and Mr. Summerfield alone. Mr. Merriam with Lieut. Gaskell. In evening, Mr. Hotchkiss alone and then with Lieuts. Loultcheff, Parker and Hope, Capts. Miller, Styles and Macdonell. Mr. Merriam alone on new machine, then with Capts. Miller, MacDonnell, and Styles, and Mr. Cheesman. Mr. Hotchkiss with Mr. Cheesman. Major Ashmore, Mr. Barnwell alone. Mr. Hotchkiss with Lieut. Gould. Lieut. de la Ferté alone. Mr. Merriam with Mr. "Darracq," latter afterwards alone. Lieut. Playfair, Mr. Summerfield, and Capt. Brabazon alone.

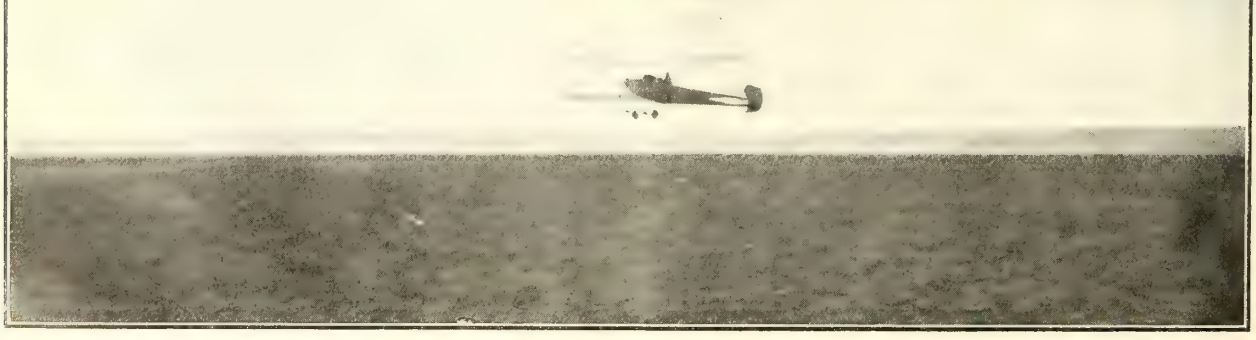
Cowes (I.O.W.).—Mr. Grahame-White on Farman hydro-aeroplane, flying vigorously from breakfast to late afternoon, among numerous passengers being the Duchess of Westminster. In evening out again with machine illuminated.

Douglas (I.O.M.).—Mr. Hamel gave exhibition in Douglas ground at 11.30 a.m. Very bad wind. In afternoon flew over to Castle Town and returned to Douglas in evening. Everyone in Douglas absolutely astounded at the way he was able to go up in winds and the pretty shows he gave. The Commissioners presented him with a gold cigarette case and matchbox as a token of their appreciation. [N.B.—Mr. Hamel is not a regular smoker.]

Eastchurch.—Lieut. Spencer Grey, R.N., on 70-h.p. Short tractor, Lieut. L'Estrange Malone, R.N., with Eng.-Lieut. Briggs as passenger on 100-h.p. triple tractor out for short period in the evening. Bréguet having 80-h.p. Chenu engine tested.

Edinburgh.—M. Marty made one flight under very bad conditions, air being disturbed owing to thunder. Start was horrible one, the machine just clearing fence by about 3 ft. and traversing portion above rocks on beach at few feet height with terrible side drift. M. Marty only stayed up about four minutes as he was getting a fine "bucketing."

Farnborough.—Major Moss on Henry Farman, Major Burke on *B.E.1.*, Capt. Mackworth on *B.E.4* Capt. Raleigh on Bréguet *B.3.*, all left here for Salisbury, Major Moss having



Lieutenant-Colonel Cook, R.A., of the Central Flying School, starting for Lee-on-Solent on one of the three school Avros.

to come down at Wootton through engine trouble, and arriving later. Later Airships *Gamma* left for Salisbury, returning about 2 o'clock, having made a good flight with 4 passengers on board. Major Burke on *B.E.1.*, on way back from Salisbury, had to come down at Crondall owing to lack of fuel.

Hendon (Grahame-White School).—School out in evening. Mr. Wynne doing straights on Sommer, followed by Mr. Fuller; then Mr. Wilson out with Mr. Blackburn, followed by Capt. Halahan. Then Mr. Turner out with a passenger, after which Lieut. Allen went out for a straight.

W. H. Ewen School out in evening, and Messrs. Ware, J. K. James and H. James, and Capt. O'Brien getting in good practice. M. Baumann out on brevêt machine and did his figures of 8 in excellent style, attracting attention by nicely banked turns.

At Bleriot School, Mr. Hall out early on *L.B.2.*, and returned suffering from buckled wheel.

Lee-on-Solent.—Colonel Cook, senior military officer, Central Flying School, made splendid flight here from Salisbury Plain on military Avro, circling over town and Solent. Did slight damage to chassis on landing.

Wem.—Mr. Brereton did some successful flying on Blackburn monoplane at Wem and District Agricultural Show. The weather was rather gusty, but Mr. Brereton was able to give the crowd a good show.

SATURDAY, August 10th.

Brooklands.—At Avro School, Lieut. Parke, R.N., on Green-engined school machine for a circuit around Ripley and Wisley Hut in afternoon for 20 mins. Before machine was out of sight it had reached a height of well over 1,200 ft. Considering great age of both machine and engine their performance of the last two days was really remarkable and speaks volumes for the expert "tuning up" of latter by Mr. Sayers.

At Sopwith School, in morning, Capt. Ellington and Mr. Lane on school Farman, both showing considerable aptitude. In evening much tuition on Farman until obliged to give up owing to heavy thunderstorm. Mr. Astley took out 70-h.p. Blériot with Mr. Whittaker as passenger, to fly to Hendon, but owing to engine failure had to come down, and narrowly escaped Sewage Farm.

At Vickers School, in morning, Capt. Stott and Mr. Geere on *No. 2*, both flying straights in good style. In evening, Mr. Knight on *Vickers 5* for circuits, flying strongly. Mr. Geere on *No. 2* flying straights.

At Bristol School, 4.30 a.m., 16 pupils turned up and each had two flights. Messrs. Hotchkiss and Merriam both out alone to try conditions. Mr. Hotchkiss with Capt. MacDonnell, Capt. Styles and Lieut. Loultcheff. Mr. Merriam with Lieut. Pen Gaskell, Capt. Miller and Lieut. Gould. Capt. Brabazon, Lieut. Joubert and Major Ashmore alone. Mr. Hotchkiss with Lieut. Parker, Lieut. Hope, Capt. Styles, and Capt. Miller. Mr. Merriam with Lieut. Loultcheff, Capt. MacDonnell, Lieut. Hope, Lieut. Parker and Lieut. Gould. Mr. Barnwell doing right and left-hand turns. Lieut. Playfair, Mr. 'Darracq," and Mr. Summerfield going well. At 5.30 p.m., Messrs. Merriam and Hotchkiss up. Mr. Merriam with Lieut. Loultcheff and Capt. Styles. Major Brabazon alone. Mr. Hotchkiss with Capt. MacDonnell, Lieut. Loultcheff and Mr. Cheesman, Mr. Barnwell, Lieut. Gould, Lieut. de la Ferté. Capt. Brabazon, coming over sewage farm, had petrol pipe break, with result that he had to make hurried landing. Wheels stuck in ground, machine turned on to elevator, and threw unfortunate pilot out, but luckily with no damage, except to dignity. Mr. "Darracq" and Mr. Summerfield out alone. Mr. Merriam with Mr. Cheesman. Mr. Hotchkiss with Capt. Styles, when thunderstorm broke and prevented further work.

Cowes (I.O.W.).—Mr. Grahame-White on Farman hydro-aeroplane made several successful flights in morning.

Eastchurch.—Mr. Jezzi out in afternoon taking Mr. H. G. Travers as passenger. Early morning, Mr. McClean started from Harty Ferry on his Short hydro-aeroplane and successfully landed at Westminster Bridge about 1½ hours after start, thus securing honour of being first hydro-aeroplane to land on the Thames in London.

Edinburgh.—In afternoon conditions excellent, and M. Marty gave good exhibition, spoilt, however, by mistake in landing. He started a *vol plané*, found he was too high, pushed machine's nose down to an alarming angle, got to earth about middle of ground, flattened out, ran over 5 ft. bank, and brought up (thanks to some long grass) with skid against fence. Result, couple of strained wires and bent stay-rod. At night another attempt was made in perfect calm, but machine failed to rise in time and poor Marty had to shut off and run into fence. Damage less than one would have expected, consisting of busted propeller, broken carburetter, and some woodwork. Lower main plane is rather badly strained. Hardly likely there will be any more aviation at Marine Gardens. It is really far from safe. The Caudron is now back at Lanark.



Mr. Merriam, who, with Mr. Hotchkiss, bears the burden of all the Bristol School work at Brooklands. He is here shown as a monoplane pilot, photographed by Mr. H. A. Croft.

Farnborough.—Capt. Raleigh arrived back from Salisbury on Bréguet *B.3.*, making good time. Major Burke arrived on *B.E.1.*, having stayed the night at Crondall.

Hendon.—At Deperdussin School, Lieuts. Chinnery, Brock, and Harrison all doing circuits on brevêt machine in excellent style and making very neat landings. Lieuts. Tucker, Rowley, Bourke, and Hawker and Mr. Andrews all rolling on taxi, making fine progress and ready for *No. 2* taxi. Mr. Andrews succeeded in getting taxi off ground and made straight flight of about 50 yards. Mr. Gill did four circuits on *No. 1.* Given good weather, Lieuts. Brock and Harrison should obtain their brevêts this week.

W. H. Ewen School out at 5 a.m. and Messrs. J. K. James, H. James, Apcar and Ware, and Capt. O'Brien getting in good practice. M. Baumann out on brevêt machine for height test, rising to over 200 ft., and making a beautiful *vol plané*.

At Bleriot School, M. Gandillon rolling on *L.B.1.* Mr. Rally also out early.

Ipswich.—M. Salmet on Blériot arrived from Felixstowe—12 miles taking 10 minutes. After circuit of town M. Salmet alighted on Gippeswyck Park Farm.

Norwich.—Some thousands of people at Exhibition ground to welcome Mr. B. C. Hucks on arrival from Gorleston. Later Mr. Hucks made fine exhibition flight, but further flying was made impossible by crowd cumbering the ground.

Windermere.—Another stormy week. Very little flying. *Water Hen* flew at Windermere Agricultural Show by arrangement with committee, and took up a few passengers, eight in all.

Visitor: "What's that thing in front?" Mr. Wakefield: "That's the elevator, to guide the machine up, you know." Visitor: "Oh! I'm sure it's not safe. There ought to be a law compelling you to cut it off." Mr. Wakefield: "But how

would the machine be guided then?" Visitor: "Well, anyhow, you'll not get me as a passenger till you do take it off!"

SUNDAY, August 11th.

Brooklands.—At Sopwith School, a great deal of tuition both morning and evening to Capt. Ellington and Mr. Lane.

At Vickers School, in morning, Lieut. Beatty, R.E., out early on *Vickers 5* flying circuits over Byfleet and Addlestone. Afterwards Mr. Knight for circuits on same machine. Mr. Geere put in good straights on *No. 2*, followed by Capt. Stott on same. School work stopped for rest of morning by unfortunate landing of Capt. Stott, which carried away large pieces of under-carriage.

At Avro School, Lieut. Parke, R.N., out on school machine in afternoon for circuits, and afterwards out across country and landed at Hounslow. Unfortunately weather not good enough to return same evening.

Eastchurch.—Mr. Jezzi out during evening on biplane taking several passengers for short flights.

Hendon (Grahame-White School).—School opened at 5.10, Lieut. Allen taking out the Sommer for straights, followed by Lieut. Stopford. Then Mr. Wynne went out and made some circuits, showing excellent form. Unfortunately he burst a tyre on landing, causing half an hour's delay. Mr. Wilson (new pupil) followed with straights, with Mr. Blackburn behind him, and then Lieuts. Allen and Stopford had a second lesson, and Mr. Merrick went for his first trial with Mr. Blackburn, followed by Mr. Wynne, who, as the wind was getting up, only attempted straights.

At W. H. Ewen School, Messrs. Edmund and Gist having great amount of practice on one of school Blériots. In evening M. Marty, one of Caudron pilots, who has been flying in Scotland, made three splendid exhibitions on 60-h.p. two-seater Caudron biplane. This biplane has not been flying at Hendon for over a month, and created quite an impression, as was shown by the demand for passenger flights.

Lieut. de Conneau's Flight.

Lieutenant de Vaisseau de Conneau, who is now managing director of the firm of Donnet-Lévèque, which is at present engaged in the manufacture of hydro-aeroplanes, left Argentenal, near Paris, on Friday last, on a Donnet-Lévèque hydro-aeroplane, with the intention of flying to London. After a slight accident at Le Havre, which detained him an hour or two, he arrived at Boulogne in the evening. The next morning he started for England. He had, however, only travelled on the surface of the water for a distance of three hundred yards when his machine overturned. He was rescued, but the flight is indefinitely postponed.

The Aerial League's National Fund.

Over 300 adhesions from lord mayors, mayors, and chairmen of councils have already been received by the Aerial League as honorary treasurers of the Million Shilling Aviation Fund, and some 4,000 collecting cards have been sent to them at their request.

It is a significant fact that a sum of £1 8s. has been received from a small band of British and native Civil officers at Kaira, Bombay, who could only have been made aware of the Million Shilling Fund by telegrams from England in the local Press.

The D. G. Gilmour Memorial Fund.

The following sums have been received for the Gilmour Memorial Fund since it was notified that the Fund was to be closed:—E. V. Sassoon, £5; H. Preston, £2 2s.; R. Preston, £2 2s.; G. Hamel, £1 1s.; H. Busteed, £1; L. Hornstead, 10s., thus adding a further £11 15s. to the amount already announced.

A meeting of the Committee of the Fund will be held at an early date, after which the exact sum subscribed, and a list of the subscribers, will be published, and an announcement will be made as to the way in which the Committee decides to dispose of the money available.

The Aviator's Alphabet.

A is the Airman well used to the fuss
Made of him and the **B**iplane he dubs his "old 'bus";
C is the Cow on which Cody alights;
D is the Doctor who put her to rights [N.B.—Poetic licence.—Ed.];
E is the Engine which frequently fails;
F is the Fall that it sometimes entails;
G is the ground which he hit upside down;
H is the Helmet that just saved his crown;
I is the Idolised Pilot of fame;
J are the Joy-rides he gives his last flame;
K is the "Constant" designers *will* use;
L are the Lies told to back up their views;
M is for Monoplane, motor in front;
N is the K-Nut who performs a great stunt;
O is the Oil engines fling in your face;
P the Propeller revolving apace;
Q is the Query, "The motor all right?"
R 's the *Remou* which gives one a fright;
S is the Streamline, our earnest endeavour;
T is the Tedium, watching bad weather;
U is the Umpire, a trifle *embêté;*
V is the *Vol-plané*, with *moteur arrête;*
W 's the Ways which broke in the air
Through **X** the Unknown, the mechanic's despair;
Y are the Yarns the inventors all tell;
Z is the Zeal of constructors to sell.

G. W.



The Army dirigible "Gamma" starting to go back to Farnborough on Friday.

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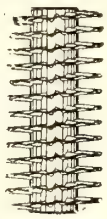
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"Reconnaissances en Aéroplane." By Capt. Pichot-Duclos, General Staff, 20th Army Corps (French).

Capt. Duclos, who has had considerable experience as an observer during manœuvres with both military and civil pilots, discusses the design and use of aeroplanes for military purposes. His arguments are illustrated by photographs and maps of actual aerial journeys.

(1) In the present state of aviation he considers that the only purpose of aeroplanes for the army is for observation and communication, though owing to the rapid progress of the science it may not be long before they become fighting machines.

(2) Aeroplanes must be designed to give the best possible field of view. He places existing types in the following order of merit:—

(*a*) Train, Vinet, Primart, Blériot XI *bis* [evidently an error for Blériot XII.—Ed.], Grade, Dorner, de Pischoff.

(*b*) Zodiac, Canard Voisin, Paulhan-Tatin.

(*c*) Bréguet—by itself, observer looks towards stern.

(*d*) Farman, Sommer.

(*e*) Blériot, Nieuport, Deperdussin.

[It should be noted that the author is talking of ease of observation only, and not of flying capabilities, in which case the order would be almost reversed.—Ed.]

Position of propeller is important, as, except on Bréguet, tractor screw hinders observation by disturbing the air, unless observer is well below it as on Train.

(3) Shelter from wind is necessary for observer to read and write in comfort.

(4) Observer should be able to turn right round without difficulty.

(5) Motor should be silent, and there should be sufficient means of communication between pilot and observer.

(6) Transmission of reports. Wireless has still to overcome many difficulties before it can be of real use. Throwing down reports without landing is practicable, and can be done satisfactorily with practice.

But landing is frequently necessary, especially to receive orders, and many existing machines are quite unsuited for landing safely on such ground as may be met with on manœuvres.

(7) The observer must be trained. Untrained observers are not "observers" but "passengers." He must be thoroughly accustomed to acting as observer, have plenty of aerial experience, good tactical training, and complete confidence in his pilot.

Staff officers are preferable, as besides having presumably better tactical training, they are known to the G.O.C., who receives their reports, and who can therefore make any necessary allowance for the "personal factor."

Capt. Duclos gives a short outline of a suggested "Manual of Military Aviation," and in the course of interesting accounts of various manœuvre reconnaissances mentions an aeroplane which refused to start as "Dont le moteur *a des caprices"!*

(8) Coming to controversial questions, Capt. Duclos dismisses the old one of monoplane v. biplane in the words, "As well ask if a two-wheeled or a four-wheeled cart is the better." Each is most suitable under its own conditions.

(9) He devotes considerable attention to the question of "Single-seaters or Two-seaters?" The facility of transport of small single-seaters is an advantage, and they are therefore suitable for cavalry, but for detailed reconnaissance they are unsuitable. Thus if the G.O.C. wishes to know, "Are there troops at Mudville?" a single-seater is good enough, but if the question is "What troops are in the vicinity of Mudville and where?" then a two-seater is necessary.

For field artillery single-seaters are suitable for observation of fire, but for fortress and siege artillery experience has shown that two-seaters are required. Capt. Duclos considers that it is not yet practicable to detail aeroplanes to the field artillery, as he estimates that by the end of 1912 there will only be 180 military and civilian pilots in France capable of doing reconnaissance work in any reasonable weather, and these will all be required for the cavalry and various staffs. He prefers military pilots to civilians for reconnaissance, as the former understand the object of the flight better, and are able to assist in the observations more readily. He states that many of the French officer pilots prefer flying with an observer.

(10) In conclusion, Capt. Duclos considers that only the very best military pilots should be mounted on single-seaters for observation work, and that the types of aeroplanes should be utilised as follows:—

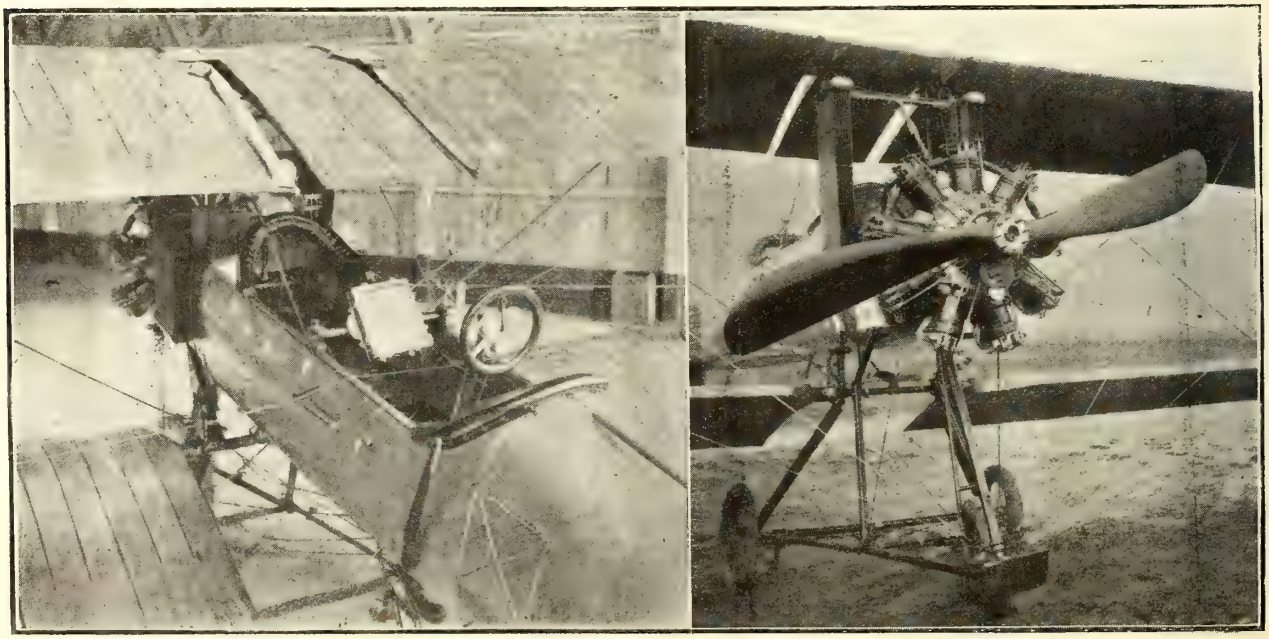
(*a*) Single-seaters.—Best military pilots: (1) Cavalry divisions; (2) Staff, up to one-third of total aeroplanes allotted to them. Remaining single-seaters, civilian pilots—communication services.

(*b*) Two-seaters.—Military and civilian pilots with observers: (1) Staff, at least two-thirds of total aeroplanes allotted to them; (2) Fortresses and sieges. When the numbers of pilots are sufficient aeroplanes may be allotted to the field artillery.

His finale is, "We will never have aeroplanes too well adapted for observation or officers too well trained, technically and tactically, for using and piloting them."—Wexford.

The Inevitable Intégral.

The success of the Chauvière Intégral propeller continues uninterrupted. The first machine to finish its trials in the Military Aeroplane Competition on Salisbury Plain was the French Deperdussin flown by M. Prévost, and fitted with an Intégral propeller. The confidence aviators have in this propeller is shown by the fact that M. Brindejonc des Moulinais started from Paris for Berlin, on August 8th, on a Morane-Saulnier monoplane, also fitted with an Intégral.



The seating arrangements and the Salmson-Canton-Unné engine on Mr. Moorhouse's Bréguet.

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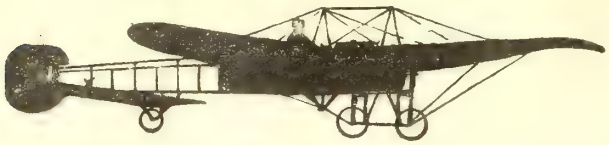
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1d WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, AUGUST 22, 1912. No. 8.

THE RECORD-BREAKER.



Above is seen the famous "B.E.2." (Biplane Experimental, No. 2), built at the Royal Aircraft Factory. On this machine her designer, Mr. Geoffrey de Havilland, broke the British altitude record last week by reaching 9,500 feet, with Major F. H. Sykes, Commandant, Military Wing, Royal Flying Corps, as passenger.

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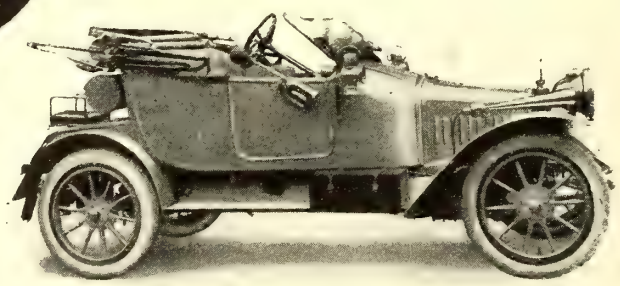
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MATTERS OF MOMENT.

SOME COMMENTS ON THE MILITARY AEROPLANE COMPETITION.

Whatever may be one's personal opinions as to the comparative virtues and vices of French and British aeroplane manufacturers, there is no doubt that the Military Aeroplane Competition now drawing to a close on Salisbury Plain has shown a singular similarity to the French Military Aeroplane Competition of last September. There has been the same unpreparedness of some competitors, the same readiness on the part of others to go out and fly at any time, and the same appalling weather to upset everyone's plans. Up to the end of last week the honours were divided between the French Deperdussin, the Hanriots, the Blériots, and the Cody, each excelling the others in one way or other, much as the Nieuport, Bréguets and Deperdussins stood out in the French trials last year.

The net result, so far, seems to have been to have confirmed the military aviators in their belief that French machines are considerably superior to British, or at any rate that French manufacturers are more go-head than British. There is a certain justification for this belief in the fact that, taking them all round, British manufacturers have not shown up well. There is, however, a very good reason in most cases for their non-success, and this deserves special attention.

It will be remembered that the final War Office notice giving authoritatively the conditions of the trials was issued so late that there was only a matter of six weeks between its appearance and the date for the delivery of the machines at Lark Hill. This date was certainly set back a fortnight, out of consideration for the constructors, but that was not enough to permit of machines being designed, built, and properly tested so that they could be delivered in proper flying trim. The natural result was that none of the British machines had really done any flying before the competition started.

One may perhaps except the Vickers and Mersey, but it is hardly fair to class the former with the machines built purposely for the competition, because it was originally built for school purposes only, and not to carry a four and a half hours' load of fuel, and the latter was practically still in its experimental stage. Even the Cody was only last year's "Circuit" machine, rebuilt with new wood-work and a bigger engine. Consequently the British machines which might have done well have been held up by defective engines and a variety of the minor troubles incident on trying to induce a new and untuned machine to perform like an old and well tried friend. The English have been called a nation of shopkeepers, but an intelligent foreigner visiting the trials might well have set us down as a nation of gamblers, judging by the way in which various constructors of machines sent them in "complete in case" so far as materials were concerned, but in reality partially built, or with untried motors, the makers trusting to luck that it would be "all right on the night," and pathetically hoping for the best.

This sort of thing is not business, and there really is some excuse for a certain officer, who not being fully cognisant of the facts concerning the delay over the issuing of the rules, damned all British constructors comprehensively for a "set of futile footlers." The saying is a hard one, but it represents the honest opinion of a considerable number of officers who have followed the progress of the trials with interest.

Another little matter which has not endeared certain competitors to those they should be most anxious to please, namely the officers of the Royal Flying Corps, is the amount of hanging about there has been, waiting for a better day, or a few more revolutions of the engine per minute, or a wind in a different direction over the speed course. Someone wants to climb a few feet more per minute, someone else thinks he can do a better glide if the wind is less irregular, yet another wants the ploughed field to be a little drier, or not so dry. Most seem under the impression that they are going to lose half a mark per inch over a certain distance taken in getting out of the harrowed field, or that the prizes are going to be awarded on some similar cut-and-dried mathematical system. True, one member at any rate of the Judges' Committee is known to have a *penchant* for reducing everything to numerical values and mapping them out on a chart, but most of us can remember that even at school marks were given for each performance as a whole, and that promptness in handing in one's work was a virtue which not seldom led to marks in excess of the value of our work because our master was not bored to distraction by a lot of silly mistakes made by others.

So and not otherwise are our exercises in later life, and one cannot help thinking that if one or two other pilots had taken their courage in both hands, and gone at the tests "all blood-stained"—to quote the phrase of one officer—as M. Prévost did, they would have got higher marks in the first week than they are likely to get this week, not to mention being less bored and worried themselves, and being less of a bore and a worry to the officials who have charge of

the competition. After all there is a lot of human nature about most people, and even an officer of a corps which, according to Colonel Seely, is to be "the *corps d'élite* of the British Army" may be forgiven if after three weeks taken in doing two days' work he is bored rigid, and like Mr. Kipling's soldier in South Africa, "wants to get done with the job, and wants to get home to his tea."

The Royal Aero Club.

At the committee meeting on the 13th inst., the following new members were elected:—Robert Smith Barry, Herbert Muir Beddall, Lieut Alan Hartree, R.F.A., E. L. Herman, M.V.O., Henry Hillcoat, G. R. G. Huddleston, Major Frederick George Jackson, and Arthur Turner. Total membership to date, 1,405.

The following aviators' certificates were granted:- 268, Ralph Gerald Holyoake (Bristol biplane, Bristol School, Brooklands); 269, Air Mechanic William Thomas James McCudden (Bristol biplane, Army School, Salisbury Plain); 270, Major Hugh Montague Trenchard (Farman biplane, Sopwith School, Brooklands); 271, Lieut. Reginald Cholmondeley (Grahame-White biplane, Grahame-White School, Hendon); 272, Captain John Maitland Salmond (Grahame-White biplane, Grahame-White School, Hendon); 273, Capt. Alister Maxwell MacDonell (Bristol biplane, Bristol School, Brooklands); 274, William Snowdon Hedley (Farman biplane, Sopwith School, Brooklands); 275, William John Harrison (Deperdussin monoplane, Deperdussin School, Hendon). (Subject to permission of the Aero Club de France.)

The Committee of the Royal Aero Club has had under its consideration the question of the desirability of flights over the Thames through London, and has decided, pending a conference with the authorities, to forbid such flights.

The race from Dublin to Belfast and back will take place on Saturday, September 7th next. The arrangements are in the hands of the Aero Club of Ireland. First prize, £300; second prize, £75.

A large number of replies have been received from aviators in response to the letter from the chairman of July 29th, 1912, asking them to refrain from making flights over the manœuvre area between September 7th and 20th next. The chairman will be glad to receive replies from any aviators who have not yet acceded to his request.—Harold Perrin (Secretary).

The Aeronautical Society.

The Council desires to thank Mr. T. O'B. Hubbard for the gift of a valuable collection of about 120 books and pamphlets on aeronautics.

Wilbur Wright Memorial Fund.—The following subscriptions have been received: Amount previously acknowledged, £500 5s.; Frank Hedges Butler, Esq., £10 10s.; Joseph Obermeyer, Esq., £1; Lancelot L. Vigers, Esq., £1. Total, £512 15s.

There will be a meeting of the Associate Fellows at the society's offices on Wednesday, September 4th, at 5.30 p.m.

Bertram G. Cooper (Secretary).

The Abolition of Lark Hill Aerodrome.

It is stated on good authority that the use of aeroplanes at Lark Hill is to cease at an early date. The squadron of the Royal Flying Corps, under Major Brooke-Popham, now at Lark Hill, is to be removed to a new location on the east side of the river Avon, near the Cavalry School at Netheravon, and comparatively close to the Central Flying School. No definite information is available as to what is to be done with the Bristol sheds at Lark Hill.

The Dublin-Belfast Race.

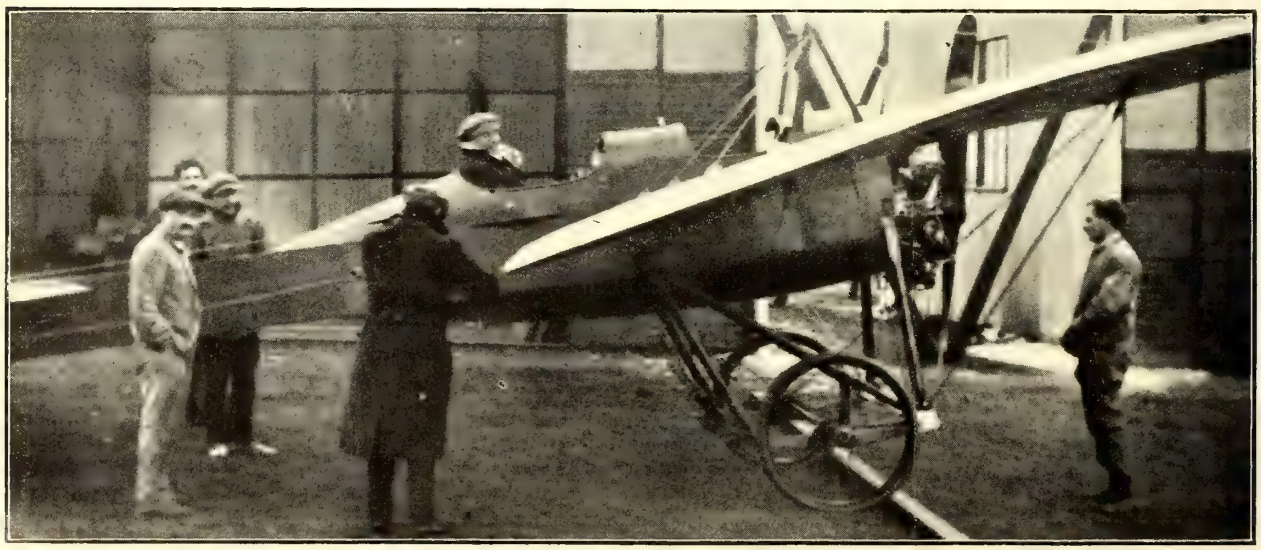
Constructors who are sending machines over to Dublin for the race to Belfast and back on September 7th may be feeling unhappy about the chances of getting their machines over without delay or damage by some railway company or other, especially after the tale of burnt, lost, and delayed machines before the Blackpool, Lanark, and Bournemouth meetings, and even quite recently in getting machines to Salisbury. It may be well, therefore, to remind them that there is an excellent line of steamers running direct from London to Dublin, so that it is possible to get the machines through with only twice handling, and each time under their owner's personal supervision.

Aviators and Ordnance Maps.

Not only are the Ordnance Survey Maps invaluable to travellers on land, but they are now found to be of the greatest assistance by aviators. For instance, M. Salmet, in his prolonged tour round the country, finds the Ordnance "two miles to the inch" maps exactly what he needs to show hills and water clearly. A special series of Ordnance maps on the scale of two miles to the inch is produced on what is called "the layer system," the special object of which is to show at a glance the varying altitudes of the land. Mr. T. Fisher Unwin is the sole wholesale agent for the small-scale Ordnance maps, which may be obtained through any bookseller or bookstall.

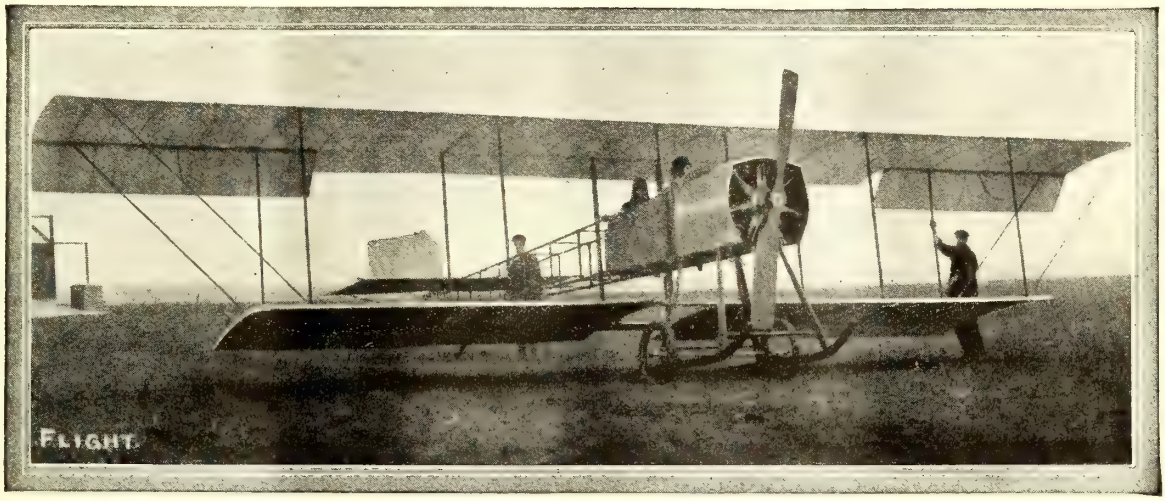
British Aeroplanes in Spain.

It is interesting to note that two certificates were gained last week by officers at the Spanish School of Aviation on Bristol biplanes. The Bristol Company have now had instruction control of the Spanish School of Aviation for the past six months, supplying both pilots and machines, and useful progress has been made. The last two certificates were gained by Engineer Lieut. Sant Roman and Cavalry Lieut. Banos. M. Henry Jullerot has been acting as instructor since the return of Messrs. Busteed and Harrison, who originally organised the school.



Lieut. J. C. Porte, R.N., on the British Deperdussin, with 100-h.p. Anzani engine, which has been flying well in the Military Competition.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Transport and the Aeroplane.—*Continued.*

BY W. E. de B. WHITTAKER

If it is decided that some form of road transport for aeroplanes is essential, then it is equally essential that the respective duties of the different types of aeroplanes shall be defined with certainty. As the years drift by and the problems of war become more difficult by reason of the increase in size of the field of battle, and consequently of the area of war, the duties and responsibilities of the transport officer become more and more complicated. Great principles may remain the same, but details alter, as do the years. Moses, in his historical march, knew not the difficulties of providing even three days' food for a solitary infantry brigade of these later days. And as the only key to the mastery of complication is system, then must everything, to the smallest detail, be adequately systematised. It is well to sit at home and jeer at the countless paper forms and returns that render dreary the life of the army officer, but abolish them and chaos reigns. Home-made criticisms are a pleasant after-dinner amusement, but their value is negligible. Nevertheless, much in human history is altered by ill-considered argument.

It is obvious that when the aeroplane takes its due position in the economy of the King's Services it will be unreasonable to expect each machine, irrespective of type, to be capable of compression into cases of one set size. The large multi-seater and the light, fast single-seater can hardly be comparable as to compactness of form. Again, even if it were possible to arrange a common packed size, the time occupied for that packing would vary greatly and to the disadvantage of the larger aeroplane. More mechanics would be required and a considerable amount of valuable time wasted. This much has been taught us by the military trials now in progress on Salisbury Plain. Those who are accustomed to the observation of things of military importance will doubtless read the lessons rightly. The time used in dissembling a large aeroplane can be greatly reduced by employing a larger case, or, better still, a series of cases. It must be remembered that the size of the cases is limited by the possibilities of transport, and not by the idle whim of a slightly bored War Office official.

So far as present experience teaches us, the principal use of the aeroplane in land warfare is for the purposes of reconnaissance under the direct supervision of the General Staff. The forms of reconnaissance are two—strategical and tactical—the former a matter of general information, the latter a matter of close detail. For strategical reconnaissance, which implies rapid scouting over fairly large tracts of country, it is probable that the majority of machines employed will be light single-seaters capable of high speed. Even the two-seated aeroplanes, which will doubtless also be used for this service, will be small in size. Thus, the cases used for the "strategical" aeroplanes will be comparatively small and compact. But whatever the final decision as to size, they must be of equal dimensions. An aeroplane leaves its case for service, and it may not return to the same place at the conclusion of the day. Thus another principle of successful transport is applied—strict interchangeability between the transported and the transporter. Speed of movement in its packed form is important, therefore the case should be part of a powerful motor-wagon capable of moving from point to point at the same rate as the Staff.

The second form of reconnaissance—tactical—requires a different type of aeroplane. The single-seater is of little use, as no pilot is capable both of managing a machine and of making detailed written observations. There are limits to human endeavour, and this is one of them. It is difficult enough for an observer, unharassed by the necessity of any other work than observation, to make accurate notes of all dispositions important to the G.O.C. his own army. It is hard enough in times of peace to describe on specially prepared cases a formal account of the ordinary events of a simple cross-country flight. Therefore, most "tactical" aeroplanes will be two-seaters and multi-seaters. It will sometimes be advisable for two or three staff officers to make a flight in company for the sake of discussion. This implies the use of a heavy machine. Therefore the packing-cases will differ in form from those of the "strategical" machine. They will be larger if employed singly, and possibly smaller if the aeroplane is split up and packed in more than one case.

Similarly, the aeroplanes attached for service with artillery, or with any other corps, will have their peculiar attributes and will be differently packed.

Aeroplane transport wagons will have to move in constant touch with the corps to which they are attached. They will be constantly with the first line. Another point liable to be forgotten is the space occupied by aeroplane transport on the line on march. Already crowded roads will become yet more crowded. Those whose duty it is to maintain order on the march will have additional cause for worry and loss of temper.



No. 1. Hanriot, hitched to a motor-car for the road transport test in the Military Competition on Saturday last.

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BIPLANES, MONOPLANES, and HYDRO-AEROPLANES.

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May 18, 1912	Brooklands Aero Club Cross Country Handicap,		A.B.C. FIRST
Whit Monday	B.A.R.C. Cross Country Handicap,	2nd Heat	A.B.C. FIRST
	" " " "	FINAL	A.B.C. FIRST
June 8	Hendon "SHELL" Trophy,	1st Heat	A.B.C. FIRST
	" " "	FINAL	A.B.C. FIRST
July 13	B.A.R.C. Cross Country Handicap,		A.B.C. FIRST
July 14	Brooklands Aero Club Speed Handicap,	1st Heat	A.B.C. FIRST
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July 27	Brooklands Cross Country Handicap,		A.B.C. FIRST

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I think it is sufficiently obvious that aeroplanes, in their march from home stations to the base of operations, must be conveyed in properly constructed transport wagons. It is by no means so clear as to where, if at all, the necessity to supply road transport for aeroplanes ceases. There are some who hold that when the two opposing armies come into contact the need for transport ceases, and that the aeroplane can then fly from point to point. Battles are nowadays not so rapidly decisive as in the past. A contest may continue with vigour for several days without any vital alteration of position on either side. That is, long marches in the zone of war are less likely to occur. Thus it is suggested that as a movement of fifteen or twenty miles is made the aeroplanes shall follow by way of the skies.

Four years have seen a great advance in aviation. A cursory study of the great flying meetings and races which have taken place since 1908 will show quite clearly the steps of the progression from theory to practice. The recent Circuit d'Anjou proved how much the aeroplane has advanced in the conquest of the wind. And yet, great aviator though Roland Garros is, there are winds which he cannot master, storms through which he cannot fly. No benign Fate regulates the weather that it shall be pleasant in time of war, and actions are fought in gales as often as in calms. There are many days on which it is impossible for the aeroplane to fly—at least, in its present stage of development. Therefore the army may make a movement in, let us say, two days over a distance of thirty miles in weather which keeps the aeroplanes to the ground. Are they to be left behind? Obviously not! Is it not simpler, therefore, to provide adequate means of transport (which at the same time provides means of protection against the wind and rain)?

In any case, the aeroplanes which would be held in reserve would travel by road. It would be inexpedient, even if the number of aviators were sufficient, to fly them from place to place. And if means of conveyance be supplied for some, why not for all?

This question, in common with all others, will be settled by experience and the lessons of time. At so early a stage in the development of a new science it is impossible to do more than record one's own opinions. There are hardly two officers in the King's service in entire agreement as to the organisation of the aeronautic arm. Even general principles cannot be laid down. What the future holds none can say.

The Royal Flying Corps.

From the *London Gazette*, August 9th :—

Special Reserve of Officers—Royal Flying Corps—Military Wing—R. R. S. Barry to be Second Lieutenant (on probation), August 10th.

A camp for the Royal Flying Corps is to be opened this week at Wallingford, where about thirty aeroplanes and two airships will be stationed for employment on the Cavalry Division training and Army manœuvres.

French Military Aviation.

Lieutenant-aviator Coville, piloting a Maurice Farman biplane, flew on August 11th from Crotoy to Aulta, near Dieppe. He left Crotoy at 7.10 a.m.

Captain-aviator Destouches last week accepted at Douai, on behalf of the Ministry of War, three 100-h.p. Gnôme-engined Bréguet biplanes (type *Concours Militaire*).

M. Roland Garros passed the first section of his military brevêt on August 17th. He left Villacoublay at 3.50 p.m. on a 50-h.p. Gnôme-engined Blériot monoplane. He flew by Etampes, Orleans, and Chartres, back to Villacoublay.

Lieutenant-aviator de Lussigny on a Maurice Farman biplane also concluded his tests for the military brevêt on the same day by a flight from Buc to Mailly and back.—W. E. de B. W.

German Military Aeronautics.

It is stated in the German Press, and it is of military significance, that the German Empire has within its borders 50 aerodromes, 45 aviation schools, and 27 dirigible sheds.

Lieutenant-aviator Reinhardt, accompanied by Lieutenant Schiebe, flew at Bitsch 100 kilometres in 1 hr. 10 m., rising once to a height of 2,250 metres.

It is reported that the Ministry of War is about to purchase a new rigid dirigible balloon. The *nacelle* in this machine is to be erected in a cavity in the under surface of the balloon. Five motors are to be fitted, one in the nose and two on either side. The armament will consist of two mitrailleuses.

The Ministry of War has decided to transmit the correspondence of the troops engaged in the forthcoming manœuvres to their destination by the aerial route, and several military aviators will be attached for this duty.

The new guns designed for use against aeroplanes have been delivered to the 6th Battery, 40th Regiment of Field Artillery. Experiments are to be made during the manœuvres.

Forty aeroplanes and three dirigible balloons (P_3, Z_3, and M_3) will take part in the manœuvres. The *Schütte Lanz* dirigible may also be purchased for the Army.

The national subscription for the purpose of buying aeroplanes for the Army and Navy now amounts to a sum of 5,000,000 marks. A "flower day" on the lines of that recently organised in the County of London is being arranged by H.R.H. the Princess Frederick Leopold of Prussia. The flower is the lily of the valley, the favourite of the Emperor. The day for the Empire is October 20th, and for Berlin and Potsdam September 1st and 2nd.

Three monoplanes were delivered to the Army on August 17th.—W. E. de B. W.

German Naval Aviation.

The Ministry of Marine has offered a prize of 25,000 marks for competition at the Wilhelmshavn hydro-aeroplane meeting, which begins on August 29th. The Government intends to purchase one of the winning machines at a price of 30,000 marks.—W. E. de B. W.

Bulgarian Military Aviation.

The Ministry of War has up to the present date purchased four aeroplanes—a Blériot monoplane, a Voisin biplane, a German Wright biplane, and a Bristol monoplane. Eight officers and three N.C.O.'s have been trained in the schools managed by the above-mentioned firms. Five additional aeroplanes have been ordered. Several officers and non-commissioned officers have been attached to the French military aviation centre at Versailles, and will remain there for several months.—W. E. de B. W.

Servian Military Aviation.

A monoplane has been constructed from the designs of M. Mercep at Agram, and has been purchased by the Ministry of War. Fitted with a 50-h.p. engine, it weighs complete 660 lbs. The lifting surface is 20 square metres, with a span of 9 metres and a length of 10 metres.—W. E. de B. W.

Roumanian Military Aviation.

Following the example of the great nations of the earth, Prince Bibesco is forming in Roumania an Aerial League under the august patronage of the President of the Chamber and of the Chief of the General Staff. The Minister of War is president. It is intended to collect subscriptions and buy aeroplanes for the army. Officers are to be trained as pilots at the great schools of France and an aviation corps of some strength formed.

Chilian Military Aviation.

After making on August 13th three flights as passenger on a two-seated (side by side) Blériot monoplane, Captain Avalos, of the Chilian Army, who has been in training at Etampes for some weeks, took a Blériot monoplane, type XI., into the air and made an excellent flight of half an hour, after which he officially accepted the machine for the Chilian Army.—W. E. de B. W.

The Eighth Wonder.

It is announced in the *Täglische Rundschau* that a German engineer has invented an aeroplane capable of remaining indefinitely in the air without moving from a fixed point. As might be expected, this machine is reported to differ considerably in appearance from any previous aeroplane. As seriously as we regard the increase of Germany's military power so ought America to regard the German advance into the realms of imagination.

The Death of M. Hubert Latham.

The *New York Herald* (Paris edition) received some days ago a telegram from Brazzaville, on the French Congo, describing the manner in which M. Latham met his death. It says that "at seven o'clock in the morning of June 25th, Latham, accompanied by a native, was hunting on the right bank of the Chari, near the place where that river joins the

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200 kil. in 1h. 13min., being 22 kil. faster than the third.

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With 70 h.p. Engine.

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LONDON AERODROME, HENDON.

Dahr-Dalamet, not far from the Gayes rapids. He wounded a rhinoceros, and was firing again to kill it, when his gun burst (sic). He took another gun from the native, and firing, killed the rhinoceros. At this moment a buffalo, previously hidden in the high grass, suddenly appeared. Latham knelt and fired, but only wounded the animal, which charged and tossed him three times. The unfortunate sportsman gave a piercing shriek and fell dead. The body was taken to Fort-Archambault the following day, and was there buried on June 30th. A little time before Latham had been slightly wounded by a buffalo."

It was announced by his family last week that Mr. Latham's body will find a final resting-place by the side of his father at Le Havre.

A Graceful Recognition.

Mr. W. H. Ewen has received from Sig. Alessandro Anzani a small gold medal in recognition of the former's excellent flight across the English Channel on a Caudron monoplane fitted with a 45-h.p. Anzani engine, the first of its type. On the obverse it has engraved a portrait of Sig. Anzani, and on the reverse is inscribed "*Souvenir de la traversée de la Manche, Mai, 1912.*"

Continental Notes.

A hydro-aeroplane meeting takes place at Geneva from August 19th to August 29th. Among the entrants are Beaumont (Donnet-Lévèque biplane), Barra (Paulhan Curtiss biplane), Sommer (Sommer biplane), and Grandjean (Grandjean monoplane).

M. Chevillard is making flights daily on the lake at Enghien on a Henry Farman biplane. He has recently taken for flights several distinguished singers at the Opera.

Mlle. Hélène Dutrieu, whose flights on a hydro-aeroplane were made recently at Enghien, is now at Trouville with a Farman hydro-aeroplane, where she intends to remain for some time making flights whenever the weather is favourable. On August 13th M. Henry Farman himself flew her machine over the sea for several short flights.

On August 10th, at Wansbek, near Hamburg, an aeroplane hangar was blown up from an unknown cause. Two Taube monoplanes and a biplane were utterly destroyed.

M. Védrines last week made several flights of his 100-h.p. Gnôme Deperdussin monoplane at Huesca, in Spain, the land of mythical castles and faded courtesy.

M. Eugène Coursin has recently made trials on a Savary biplane piloted by Frantz, of a new bomb-dropping instrument. Success attended his efforts.

The Rumpler firm are constructing a tail-first hydro-aeroplane, and expect to put it through its trials at Johannisthal shortly.

On August 31 will begin a new aerial race round Berlin. Starting from Johannisthal, the course is by Lindenberg, Schulzendorf, Spandau, Potsdam, Teltow, and back to Johannisthal. Prizes of the total value of 60,000 marks are offered —a sixth of which has been contributed by the Ministry of War. The authorities realise that in the encouragement of private aviation endeavours lies the surest road to advancement.

The great hydro-aeroplane race of the year takes place on August 24th, 25th, and 26th, from Saint Malo to Jersey. Six prizes are offered, the first of 15,000 francs and the sixth of 1,000 francs. Two races take place in the bay at Saint Malo and one race to Jersey and back in which the aeroplanes must make a descent at the latter place. Handicaps are arranged according to the number of passengers carried, as in the Circuit d'Anjou. Entries have been received from the following: Molla (R.E.P. monoplane), Train (Astra-Train monoplane), Weymann (Nieuport monoplane), Benoist (Sanchez-Beza biplane), Chambenois (Borel monoplane), Beaumont (Donnet-Lévèque biplane), Busson (Deperdussin monoplane), Renaux (Maurice Farman biplane), Labouret (Astra biplane), Barra (Paulhan biplane), Mollien (Paulhan biplane).

Aviation in America.

Mr. Earle L. Ovington, the well known American aviator, writes:—

"It is hardly necessary for me to say that I enjoy reading The Aeroplane very much indeed. I congratulate you upon publishing such an attractive sheet. I shall take the very greatest pleasure in letting you know the details of my new machine just as soon as it is completed, and I do not mind saying now that it will be something entirely original and not follow conventional practice.

"Speaking of this matter of 'exhibition flying,' I have come to the conclusion that sooner or later one is dead sure of being killed if one plays the game properly. Of course a fellow can be very cautious and therefore decrease the risk of accident, but when a man has paid his money to come to see a flier, he naturally expects that man to fly, and we aviators know enough about our machines and the atmospheric disturbances to be able to fly under all ordinary conditions. If a man does this and keeps it up he is pretty sure of getting killed, and it is only a matter of time. You may say that Grahame-White and some of the older men in the game are still alive. I agree with you, but, then, they are getting more and more cautious every day, and that is probably why a serious accident has not been experienced. Our aviator, Eugene Ely, was one of the best aviators I have known, and one of the most cautious, but he met the fate of many who have gone before. [N.B.—Ely only fell a few feet, but he was flying a machine in which he was the first thing to hit the ground.—Ed.] While I was flying in exhibition I never refused to go up, and distinctly remember one day when I could make no progress whatever towards the mile-a-minute wind which was blowing. However, as I look back upon my season's flying I do not see how I escaped serious accident.

"I am glad to see that you in England have instituted military trials for aeroplanes, and I believe that this will do aviation more good in your country than almost anything else. Unquestionably the French trials which turned out so successful have been a great stimulus to the progress of aeronautics, and did much to perfect the progress of the aeroplane. We are doing our very best in this country to see if we cannot inject a little enthusiasm into our own War Department and get them to hold a similar set of tests."

Writing later, Mr. Ovington says: "I am doing a good deal of lecturing and would be glad to have the British manufacturers send me pictures of their machines. I will mention the manufacturer's name in every case, and hence there is a chance for a little free publicity here. I hope I am not asking too much to request you to do this, but it seems to me it will be a direct aid to the British manufacturer.

"I hope your British manufacturers are getting busy on the speed question and will send over to America something pretty fast. If we don't win the Gordon-Bennett trophy, we want you to. Let's keep it in the family anyhow. It is going to take some beating, however, to wrest the trophy from some of those French speed monsters."

[Alas! there will be no British representative at all.—Ed.]



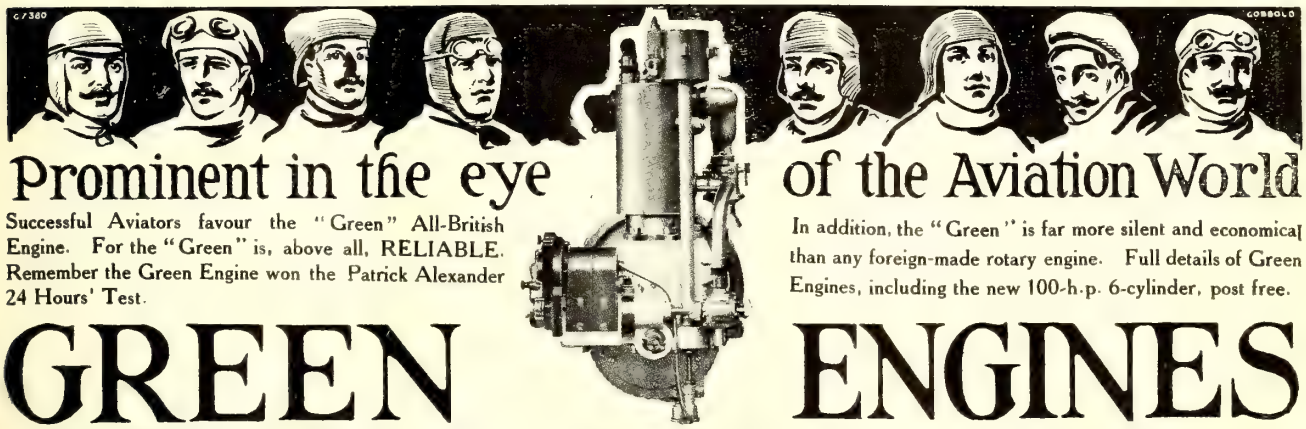
Mr. T. O. M. Sopwith is now in America tuning up "Maple Leaf IV" for the International Race. He is here seen piloting Mr. Norman Clark Neill's Saunders-sewn hydroplane "Minimum" at 30 knots.

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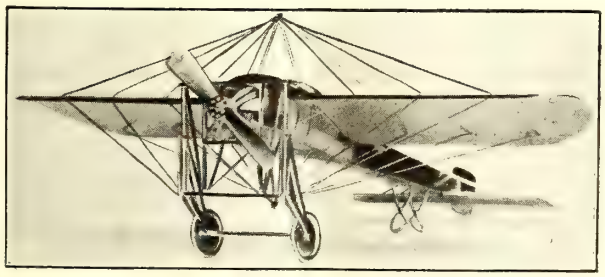
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The Central Flying School.

Apparently the daily Press has now discovered the existence of the Central Flying School, and, various reports as to its composition having appeared, it may be as well at this date to give some general information about the establishment which is to train the *personnel* of the Royal Flying Corps. At present the staff of the school consists of Captain Godfrey Paine, R.N., Commandant, with Lieutenant-Colonel Cook, R.G.A., Lieutenant Longmore, R.N., Captain Fulton, R.F.A., Captain Gerrard, R.M.L.I., and Captain Broke-Smith, R.E., as instructors.

The exact form instruction is to take does not yet appear to be definitely fixed, but one may assume that the scheme will be directed towards making officers of the regular forces into capable cross-country fliers, and to making aviators, who join as second lieutenants of the Special Reserve (on probation) into officers and gentlemen, so that the work before the instructing staff promises to be both varied and interesting.

It is understood that besides the staff of instructors named above, a meteorologist is to be appointed, and, though the appointment has not been made at the time of writing, a special non-magnetic building has been erected for his reception. One may observe, however, on inspection, a galvanised iron drain-pipe which is likely to upset his calculations unless removed, or carefully demagnetised. Still, the existence of the building is an earnest of the good intentions of those who are responsible for the original design of the school.

The bodily welfare of the *personnel* has been provided for by the appointment of Captain Cordner, R.A.M.C., himself a certificated aviator of varied experience, who took his certificate recently at the school. In the nature of things, and in this age of "Daily Mailism," this officer has, of course, been labelled "the air-surgeon." The spiritual welfare of the school is in the hands of the *padre* of Upavon, with whom arrangements have been made that he is to conduct service at the school itself, presumably with the idea that it is easier to send a car to fetch him than it is to march the officers and men of the school down a 300-foot hill and back.

Topographically, the school scarcely strikes one as being ideally situated, but it has its saving graces, which will doubtless become more apparent in the future, when the crops now on the ground have been cleared.

Taking its bad points first, the school has been located on the top of a mountain, where it is open to every wind that blows. By some strange mental twist of the official locator of military buildings, the engine house and stores have been carefully built in a grove of fir trees, where they are splendidly protected on every side except the south. It is said that petrol engines run better in pine country than elsewhere, so possibly this locating has been done with the idea of increasing the efficiency of the power plant, which is ultimately to supply electric light and water, so that there will be a saving in the amount of petrol which has to be hauled to the mountain-top. The big erecting sheds and one row of aeroplane sheds are also fairly well protected by the same belt of trees.

On the other hand, the officers' quarters are situated on the bald northern slope of the hill, with roughly a 200 ft. drop immediately behind them. Fortunately the mess building has been placed below the sleeping huts, otherwise one can easily imagine an officer coming out of mess on a dark winter night, missing his quarters, and sliding down the slope to the almost precipitous descent into the valley. As it is, thanks to this kindly forethought, he has to climb up-hill wherever he wants to go, almost, after leaving the mess. The men's quarters, which are between the officers' quarters and the workshops, are somewhat protected by the tail end of the belt of pines.

The hill-top is bisected by the road from Andover to Upavon, which runs almost east and west across the plateau of the summit. On the south side of the road, facing directly towards Lark Hill, some seven miles away, are the eight sheds now in use. In front of them is a narrow, flat landing place, excellent for experienced fliers, but somewhat circumscribed for those who have only just taken their certificates. To the south the ground slopes sharply to a deep hollow. To the right, or west, the slope is more gradual, till about half a mile away one reaches the steep drop into the Avon Valley. By turning to the left, before reaching this drop, one can keep on fairly level ground between the hollow on the left and the valley on the right, till one comes to a ridge running west to east, and by turning left again one can run along this ridge to an old training gallop which curves up to the north along another ridge, the eastern side of which is protected by a belt of trees, which are likely to make a healthy downward *remou* in an east wind. Here one can turn to the left again and facing westward get back to the sheds. Consequently, when the ground is all cleared, a fairly expert "roller" could taxi round a five-mile circuit, but he would have to be cool and clever, otherwise he would certainly roll down the sides with disastrous result.

There is good enough ground for a good flier to land anywhere inside the five-mile circuit, and plenty more outside it, but there does not appear to be any portion where the "certificated aviator," whose experience is confined to a fortnight's wallowing in a box-kite, can indulge in the inspiriting pastime of chasing his own tail, should the commandant decide that officers of the Royal Flying Corps will be more valuable if taught to fly fast monoplanes or tractor biplanes.

Also there is no really good rolling ground for pupils who are learning *ab initio*. The method at present adopted is for the instructor to take the pupil up on a dual control box-kite, and correct his every movement from the first time he gets on the machine till he is quite a capable flier and can be trusted to roll along the ridge after landing without falling down the side. This system is wasteful, because it means that every tour of an apprentice must be personally conducted by an instructor instead of the pupil being sent out to roll, and find things out for himself.

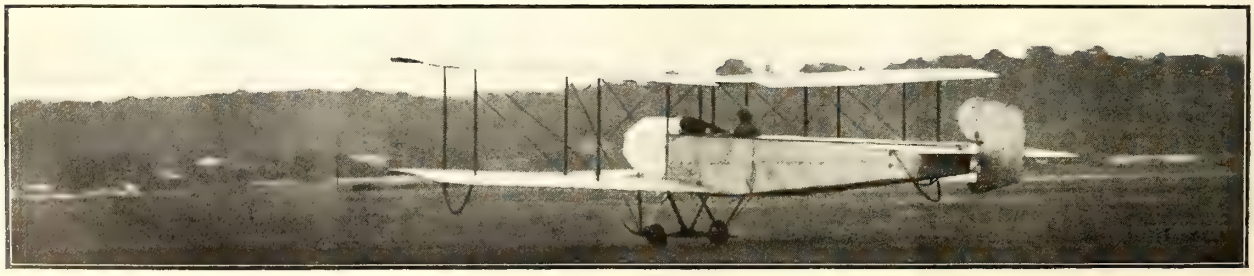
The surroundings are full of queer currents, for the Avon valley on the west, and the big dip in the middle of the ground set up *remous* of their own of different kinds in different winds, and the cliff at the back of the officers' quarters in a north wind sends up a vertical *remou* which the late Captain Loraine said could be felt at 3,000 ft.

There are plenty of worse grounds in the country—Farnborough, for instance—but there are plenty of better places on the Plain. Unfortunately these are mostly needed for artillery ranges, as Knighton Down and Lark Hill, and so are not available, though it does not seem to the lay mind that it would have been impossible to make Knighton Down an aviation ground and Upavon an artillery range.

One of the objections to Lark Hill was that the aeroplanes disturbed Bulford Camp and certain gentlemen who live in the neighbourhood of Amesbury and Shrewton. No such consideration seems to have been given to the peaceful and beautiful village of Upavon, or to the Cavalry School at Netheravon.

However, all is for the best, in this best of all worlds, and one may confidently expect that those aviators who survive the gorges and ridges, the upward and downward *remous*, the Arctic frigidity and Saharic parchedness of the Upavon School will develop into aviators of unsurpassed hardiness, so that the War Office's little £40,000 deal in land may justify itself of its children after all.

At any rate, one may be happy in the thought that no aviation school in the world, military or civil, has such an able staff of instructors or is under such capable management.
—C. G. G.



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The Military Aeroplane Competition—*Continued.*

Last week should have been considerably enlightening, both to the military authorities and to aeroplane builders, if its lessons have been rightly understood. Despite awful weather there was quite a lot of flying, and also there was not a lot of flying that there ought to have been if opportunities had been taken when they might have been, so that certain makers scored more heavily than they would have done if others had had more foresight and enterprise. Some of the early critics of the competition said that the trials would be a test of pilots rather than of machines, but no one seems to have foreseen that one of their most important results would be to give the military authorities a very clear insight into the psychology of the various builders of aeroplanes, and I venture to predict that, irrespective of prize-winning, the big orders for aeroplanes which are to come after the trials will be given to the firms which have shown the most businesslike way of doing things, provided their aeroplanes are as good as the next man's.

Monday, August 12th.

Monday allowed a fine day's flying, and the first out was Mr. Cody, who turned up at 3.45 a.m. to go for his speed tests. When he got over to Knighton Down there were no observers there, so he came back, after waiting an hour, to look for them at Lark Hill. For once a competitor got in front of the Army, so let the score be to his credit. At 5.10 a.m. Mr. Cody went off again, and came back at 7.33 a.m., having put up speeds of 72 to 73 miles an hour.

How Cody manages to stand being pushed through the air at that pace without goggles, and in an ordinary suit without a wind screen or any protection, is simply marvellous, especially in a man over 50 years of age; and, despite his weight, which is something like 16 stone, he is as active as a two-year-old. In fact, he seems a kind of large-sized Peter Pan—the boy who won't grow up. One of the officials remarked to me towards the end of the week that Cody was just like a boy at school sports. The description fits admirably, for he was always wanting to know whether he could go for this or that event, claiming that he could beat this or that performance—and doing it—and generally setting about the various events in the same spirit of deadly earnestness and good sportsmanship in which the right sort of boy goes to work over his sports. Cody looks like winning a very fair share of prize-money, and whatever he wins I do not think a soul will grudge him a penny of it.

By the way, certain people have remarked to me that the Cody biplane is not good for military purposes, because the front elevators prevent a clear field of fire. Cody admits this, but says the present machine is not a fighting machine: it is built for observation purposes, and for that he says he has as good a view as any machine in the world. He tells me that he intends to build a fighting machine after the trials are over, and this will not have any front elevators. Also it will be streamlined, with a protective body for pilot and passengers. Its advent will be unusually interesting.

However, to return to the trials. At 4.55 a.m. M. "Bielo," on the Hanriot, No. 1, went for the three-hours test, and succeeded admirably. M. Perreyon, on the tandem Blériot, No. 4, did his gliding test and the landing in the ploughed field, starting out at 5.14 and returning at 8.49 a.m. The little Vickers was out twice for short flights at 4.59 and 6.7 a.m., the engine still suffering somewhat internally, though in spite of this Mr. Macdonald flies her excellently, and is making quite a big reputation for himself as a pilot.

Mr. Harry Busteed on the Bristol, No. 14, did his three-hours test between 5.13 and 8.18 a.m. Lieut. Porte, R.N., on the British Deperdussin No. 20 also went for the three hours, but was brought down by plug troubles after flying from 5.16 to 6.36 a.m. Mr. Pixton—*vice* Mr. Valentine retired—took up Bristol No. 15 for a test from 5.25 to 5.41 a.m., and then came down for adjustments.

About 5 a.m. Captain Hamilton was out on the "Army" Deperdussin—which happens to be his own private property, I believe—and about 5.30 *B.E.4.* came in from Farnborough. At 7.45 a.m *B.E.2.* came in from her 9,500 ft. height record, with Mr. de Havilland and Major Sykes on board. At 8.10 a.m. *B.E.1.* arrived from Farnborough. The two Bréguets, *B.3.* and *B.4.*, were already here, so there was quite an array of Army machines. During the day *B.E.4.* made seven trips without incident or accident, but *B.4.* was unlucky enough to break a wheel. Captain Conner on the Nieuport was also out. The little *Gamma* arrived at 6.30 a.m. from Farnborough, and stayed till 2.10 p.m., when she had a big job to get away at all against the wind.

At 5.45 a.m. Mr. Sippe took the Hanriot No. 2 over for her speed tests, and did the best pace recorded so far, namely 75.4 m.p.h. average. He also tried for slow speed, and managed to cut down to 66.6 m.p.h. These slow speed tests are really rather dangerous, for there is a temptation, if the morning is calm, to slow down, till the control becomes "spongey," and then if a gust comes along there is likely to be the usual side-slip and nose dive. Of course, a big variation of speed is greatly to be desired, but it ought to be the subject of a special competition, in which special devices or designs are tested, instead of merely depending, as at present, on how near the edge of danger a pilot can go.

About 6 a.m. several tuning-up flights were made, among them being performances by M. Verrier on the Maurice Farman, and Mr. Sopwith on the No. 10 Coventry.

The morning flying was stopped by the wind about 8 a.m., and nothing happened till 3.15, when the Antoinette-engined Martin-Handasyde ordered for the Army went out for ten minutes, Mr. Bell handling her excellently in a big wind. The only other machine out was the Hanriot No. 1, which "Bielo" took for another wind test. During the afternoon the Anzani-Deperdussin did her dissembling and road-transport test, and the A.B.C. engine long expected for the Flanders biplane arrived.

Tuesday, August 13th.

Tuesday was windy and cold, but dry, so there was a fair amount of flying. The first machine out was the No. 4 Blériot, which did her road transport test. After coming back to the sheds she was assembled, flown a circuit, with Lieut. Fox as observer on board with M. Perreyon, and was back in her shed all in 27 minutes. Pretty sharp work!



Aviators at Play:—Mme. Védrines batting; M. Védrines bowling; Lieut. Hartree, R.F.A., wicket-keeping; Mr. Cody and Mr. Perrin fielding.

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Read what Mr. S. F. Cody, who is doing so well in the Military Aeroplane Competition, thinks of Cellon.

"Vale Croft," Ash Vale, Surrey, May 27th, 1912.

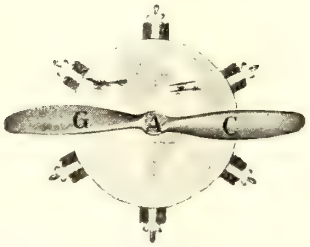
Now that I have tested my machine by flying to Hendon yesterday, reaching an altitude of 4,850 feet, encountering 3 rain-showers and traversing 3 heavy rain-clouds, after landing I examined the fabric to find that it was in perfect condition as regards tightness, though much oil had been thrown about parts of it. I have decided to varnish my next new machine with "Cellon." The last lot you sent to me is insufficient for the new machine, so will you please forward 4 gallons more of No. 17 or that that tightens most.

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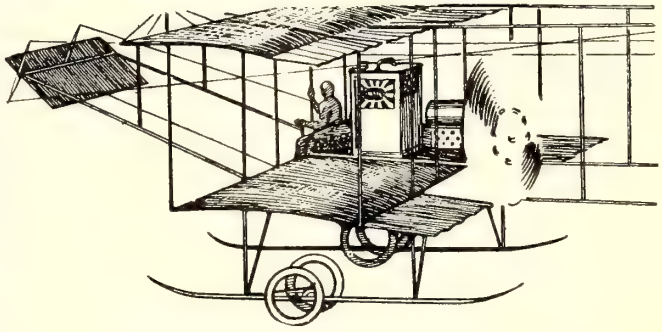
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GODBOLD

The Army machines were all busy, *B.E.1.* doing four flights. *B.E.4.* five flights, and *B.E.2.* six flights. The Army Henry Farman and Captain Hamilton's Deperdussin were also out, and *B.3.* (Bréguet) made three flights.

During the afternoon M. Védrines arrived to fly the British Deperdussin with the Gnôme, but did not go out. A Gnôme expert put in several hours on the 100-h.p. Coventry, and is alleged to have got at one time an extra 160 revolutions per minute out of it, but unfortunately 80 of them went and expired next day. One of the Coventry engineers commenting on the missing "revs.," said mournfully, "They're delicate things, is revs." The 120-h.p. A.B.C. was fitted in the Flanders biplane during the day, and won general approval of its design.

In the afternoon Mr. Sippe took his brother out for a nine minutes flight in a very nasty wind. A good test of nerves for one who had never been in a machine before!

Mr. Gordon England on the sole remaining Bristol tractor biplane was out tuning up about 5 p.m., and at the same time Mr. Busteed went for the gliding tests on the Bristol monoplane No. 14. M. Perreyon on the side-by-side Blériot No. 5 did his speed and climbing tests, and later flew for over an hour. Mr. Cody was out for a few minutes, as also were Mr. Pixton on Bristol No. 15 for 15 minutes, Mr. Macdonald on the Vickers for 8 minutes, M. Bielovucic on the Hanriot No. 1 for 45 minutes, Mr. Busteed on the Bristol No. 14 for 3 minutes, and Mr. Raynham on the Coventry No. 10 for half an hour. Then at 6.6 p.m. poor little Fenwick went out on the Mersey in a momentary flat calm, and two minutes later was killed. Mr. Busteed, who was in the air at the time, said that the gusts he met when these wind squalls came up were the worst he ever felt on the Plain. The accident put an end to flying for the day.

Wednesday, August 14th.

Wednesday was bright and comparatively calm in the early morning, but cold. M. Bielovucic was first out, at 5.10 a.m., taking the No. 1 Hanriot for speed tests. Unofficially he is said to have done 78 m.p.h., but the best speed I saw credited to him on the official notice board is 75.2, though possibly the latest figure may not have been put up, for such are the habits of notice-boards, even under military supervision. The No. 4 Blériot was also out for speed trials. At 5.30 a.m. the Vickers started for its three-hours test, and Mr. England on the Bristol biplane started at 5.50, but just before 8 a.m. the wind got up and blew furiously, so that the Vickers was forced down at 7.58 and the Bristol at 7.57. Lieut. Porte, R.N., on the Anzani-Deperdussin, who started at 6.18, held out till 8.14, when he also came down, but Mr. Pixton on the Bristol monoplane No. 15, who started at 5.33 a.m., hung on grimly to the end of his time and came down very promptly at 8.33 a.m. This is evidently one of the cases where pure piloting tells, for Pixton made his name originally as a wind fighter, and his experience in that exercise told when it came to the fine point, for all the other three are capital fliers, but just lacked his special training.

He told me afterwards that the weather was so clear that at 4,000 ft. he could see the whole of the Isle of Wight, and the shipping on Southampton Water and on the Solent. Now the Solent is 45 miles from Lark Hill, and the centre of the Isle of Wight must be something like 60 miles, so Colonel Seely's statement that an air-scout at 4,000 ft. could survey 10,000 square miles of sea is not so far wide of the mark. Taking the area of the circle, he can view as the square of the radius multiplied by 3.14159, we get 60 by 60 by 3 1-7th, or about 11,300 square miles. Carping critics please note. Still it is not often that the weather is clear enough to allow one to see so far.

The Coventry biplane was out for about 20 minutes, and Captain Hamilton's Deperdussin for 12 minutes. *B.E.2.* made five flights.

Captain Conner took out the Nieuport, and at 7.20 made a very bad landing, the machine coming down on the left wing and nose, then standing on its head, and afterwards falling back right side up. Very little damage was done to the machine, and none to the pilot. The accident is hard to explain, for Captain Conner's landings are generally excellent. It seems, however, that while he was flying the filler-cap of the petrol tank blew off and hit one of the thin tubular struts of the *cabane*, the upper pylon which carries the wing stays and warping wires. This tube was certainly bent and dented when he came down, and if it were dented in the air it would probably bend under the strain of warping and upset the warp enough to prevent proper control. The moral seems to be that the *cabane* tubes should be stronger, and that filler-caps should be locked so that they cannot possibly come off, for if one hit a pilot in the face it would probably stun him and cause a smash. The only other machine out was the Blériot No. 4, which flew for a couple of minutes in a 25-mile wind. The evening was wet and very windy.

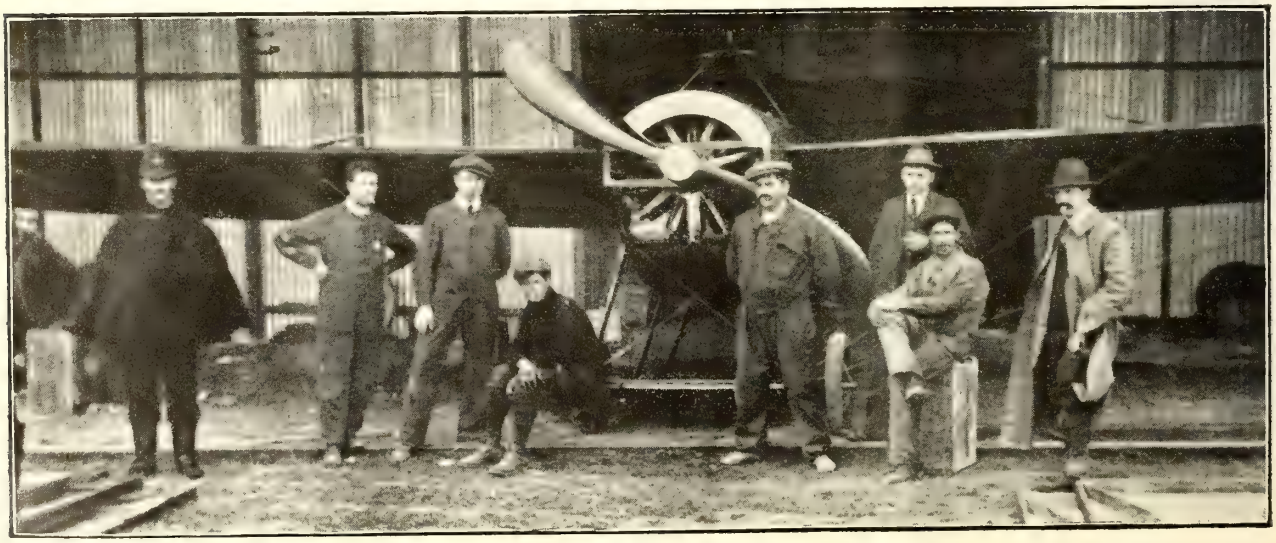
Thursday, August 15th.

Thursday was dull, cold, windy, and wet, so hardly any flying was done, and that only in the afternoon. About midday 250 Territorials were marched up to the military sheds, where a lecture on aviation was given to them, with the famous *B.E.2.* as an example, after which Lieut. Fox made four flights. The first get-off was very bad—for him—the machine bouncing and rocking badly over the first dip in the Plain on meeting a series of nasty gusts, but the rest of the time he flew very steadily. M. Perreyon, on the side-by-side Blériot No. 5, went out at 5.45 p.m. and got, apparently, a very bad shaking, but a few minutes later he was out again on the No. 4, which he seems to prefer, for he certainly flies it much better than the other. M. Bielovucic on No. 1 Hanriot was also out twice about 7 p.m., apparently for fun, as he had done all his flying tests. After that it blew and rained, so everyone went home.

Friday, August 16th.

Friday was worse. It was blowing hard at 6 a.m., and the only entertainment we got was watching Lieut. Porte testing the 100-h.p. Anzani engine.

The middle of the day was fairly bright, but too windy for



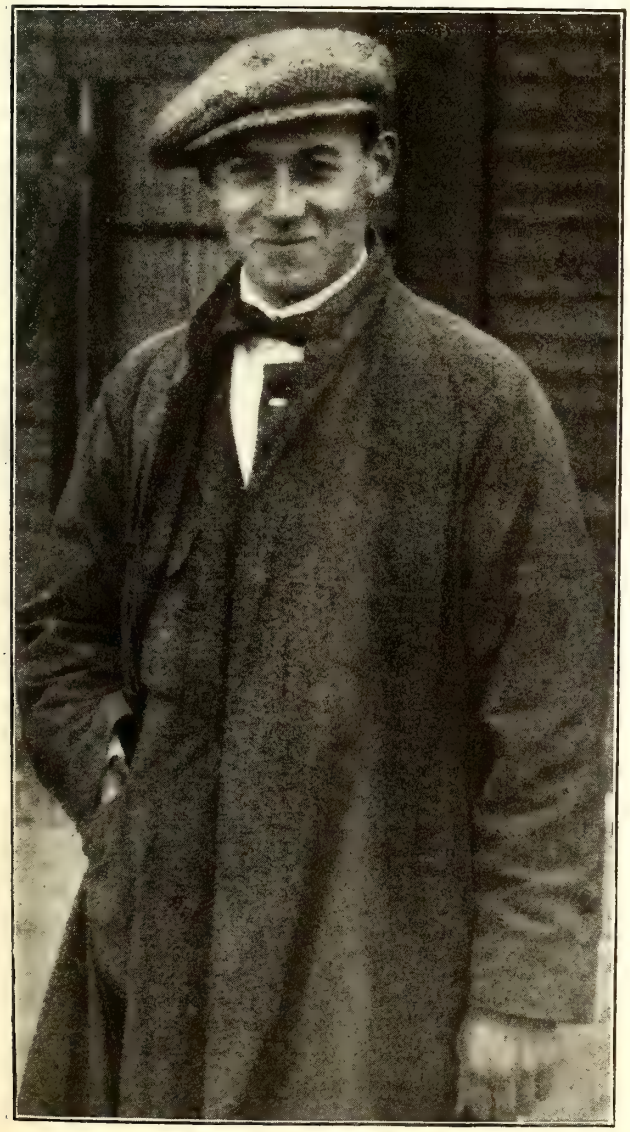
The crew of the Hanriot, No. 1., who have done such good work in the Military Competition. On the left is some "local colour."

flying, so to while away the time M. Védrines went into Amesbury and bought some small cricket stumps and a ball, and, with a Deperdussin skid as bat, defied the world to bowl him out. However, the feat was accomplished by Mr. Harold Perrin, secretary of the Royal Aero Club, and general factotum pro tem. to the Judges' Committee. Mr. Cody at point and Lieut. Hartree as wicket-keeper added materially to the joy of the proceedings. By the way, M. Védrines' header on to the railway a few months ago seems to have quite altered him, for his patience during the trying wait for good enough weather to allow him to go for the three hours test on the British Deperdussin has been exemplary. Madame Védrines, who also showed herself to be a cricketer of promise, also seems to have altered considerably since last year.

Later, when cricket palled, some genius fetched long light ropes from a shed and induced Mr. Cody to give an exhibition of lassoing. He lassoed sheep, he lassoed Boy Scouts, he lassoed aviators, and I verily believe he would have lassoed the whole Judges' Committee if they had happened along. His skill is wonderful, especially considering that he gets no practice. His prettiest trick is to drop the loop over a running man's neck, and then, as he throws his arms up to release himself, to jerk the rope round his arms and then round his legs, so that the more he kicks and struggles the more he ties himself in knots and tightens the loop round his neck. Another pretty little trick is to get someone to run, and then throw the loop in front of him so that, however he dodges, he inevitably steps into it and is caught by the ankle. Imagine the eye and fineness of touch needed for these tricks, and then realise that there is not a wirestrainer in the Cody machine, except where wires have to be detached for packing, because all the wires are pulled taut and knotted by Cody himself with his naked hands. I have seen him doing it, so I know. It is rather a fearsome sight to see a man pulling up ten-gauge high tensile steel wire through an eye-bolt and then tying knots in it with his fingers. The contrast between this and the lasso gives one some idea of the astounding versatility of the man.



M. Bielovucic, pilot of No. 1. Hanriot.

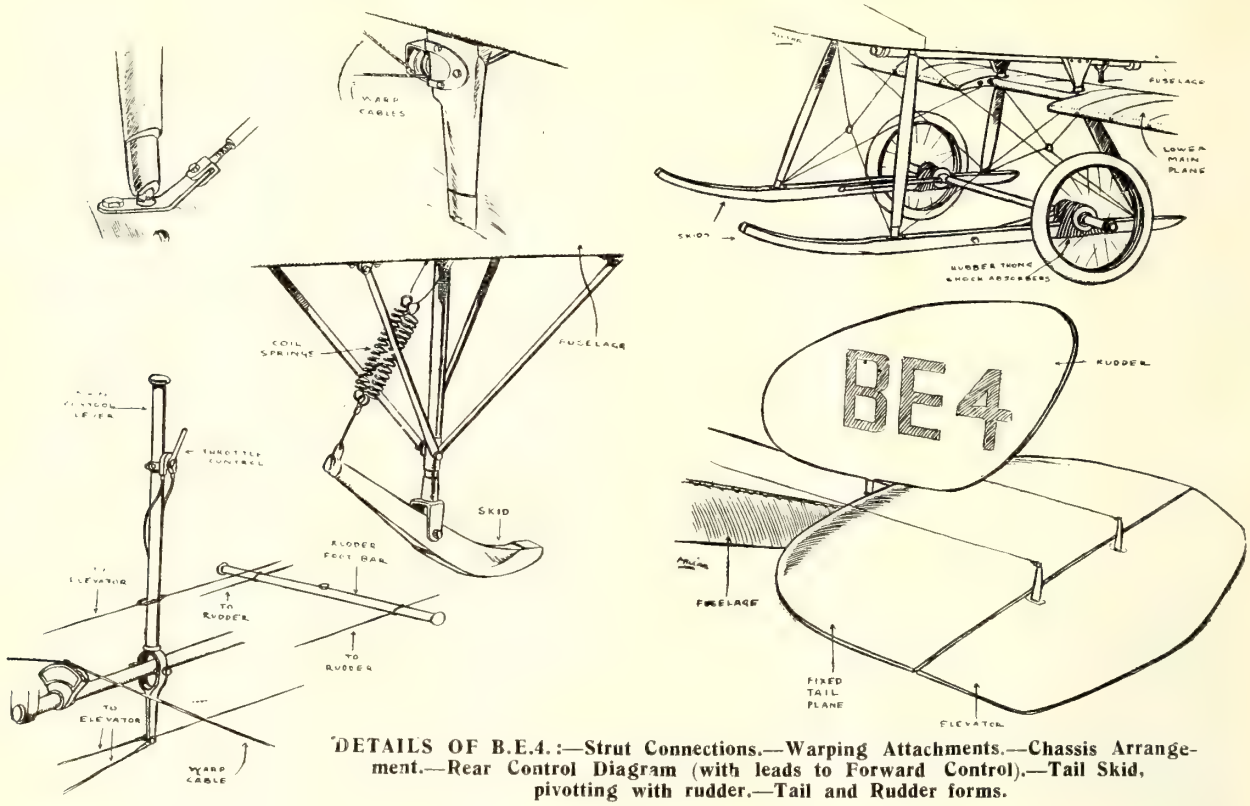


Mr. Sippe, pilot of No. 2. Hanriot.

Later in the evening M. Perreyon took out the No. 4 Blériot three times, giving "joy rides" to his mechanics, and at 7.15 or so M. Bielovucic took the Hanriot No. 1 for her ploughed field tests. Quite late the rebuilt Avro arrived and was unpacked.

Saturday, August 17th.

Saturday was the climax of bad weather, and nothing seemed possible, but during the morning the No. 1 Hanriot did her last test, that for road transport. She was taken to pieces in 12½ minutes, towed behind a car at 17 miles an hour, whereby her wings were covered with mud, she was assembled in 17½ minutes, including unpacking, and flown straight away by M. Bielovucic, who deliberately landed across the wind with a 15-mile sideways drift, just to show what a good pilot could do with the Hanriot chassis. The Hanriots have both done splendidly in the trials, and it should be a close thing between them, the Deperdussin, the Cody, and the Blériot for first place. It is also possible that when they finish their tests the Bristols may make a good show on points. As an example of the wonderful standardisation of the Hanriots it



DETAILS OF B.E.4.:—Strut Connections.—Warping Attachments.—Chassis Arrangement.—Rear Control Diagram (with leads to Forward Control).—Tail Skid, pivotting with rudder.—Tail and Rudder forms.

is worth noting that the two machines when officially weighed only had 1 lb. difference between them.

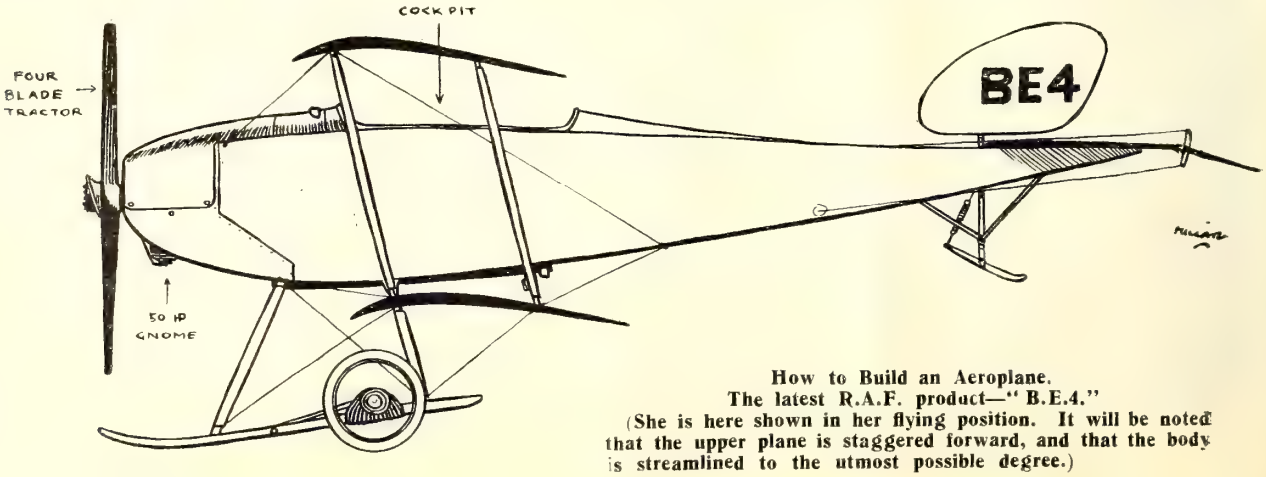
Most of the morning was spent by General Henderson and Major Sykes in testing the "vision" of the machines. They have evolved the prettiest and simplest method imaginable. The floor of a shed is marked out in big squares like a draught board. A machine is wheeled in till an officer in the pilot's seat is right over a point in the centre of one side of the square formed by all the other squares. From that point the observing officer marks on a duplicate map on a board which he carries, the squares he can see over the front of the wings. Then the machine is pushed in till he is over a stated point inside the main square, and the observer marks what he can see over the back of the wings. Then the performance is repeated with the observer in the passenger's seat.

Obviously the machines which would score most in this test would be the tandem Blériot and the French Deperdussin, in which the passenger can see under the wings to all the squares. The Cody would probably score over the Maurice Farman by being able to see backwards under the wings instead of over them, but in seeing forward to the horizon the Cody and Farman would score over all the rest.

There is only one fault in this system of test, namely, the variations in the heights of various *chassis*, though doubtless the judges are allowing for this. For instance, the pilot and passenger are in almost the same position side by side in the Vickers and the Blériot. I should say the angle of vision is nearly the same in each machine, but the Blériot is higher off the ground—or if it is not, let us assume it to be so. It will be found that the higher the machine is off the ground the greater the area of vision cut off by the wings, consequently the pilot or passenger of the Blériot will see less of the draught-board that if he was on the Vickers with a lower *chassis* and was a foot or so nearer the ground.

Some idea of the vileness of the weather may be gained from the fact that in the eleven days of the competition up to Saturday last the flag to show that the judges thought flying to be possible was only hoisted for 52 hours 35 minutes, and I can assure everyone that the judges are by no means too lenient, for the flag goes up as soon as the wind goes down to twenty miles an hour, though naturally a 20-mile wind on the Plain is not so dangerous as a 15-mile wind at, say, Brooklands.

On the whole, everyone is getting rather bored with the



How to Build an Aeroplane.
The latest R.A.F. product—"B.E.4."
(She is here shown in her flying position. It will be noted that the upper plane is staggered forward, and that the body is streamlined to the utmost possible degree.)

competition, for most people have by now made up their minds which are the best machines, purely as flying machines, and the judges must have decided long ago which are the best designs for military purposes, so presumably the prizes might be awarded at once, but for the fact that one or two promising machines have really been prevented from flying by sheer hard luck. It is rumoured that something like an ultimatum is to be issued by the judges—it may have been delivered by now—to the effect that, weather or no weather, every machine which has not done its qualifying tests by next Saturday will be out of the hunt officially, and in any case the whole competition is to be shut down by Saturday week.

Stray Jottings.

Somehow one gets the idea that the British Deperdussins are not doing much because they have not finished their tests. As a matter of fact, Lieut. Porte has spent something like seven hours in the air on the Anzani-engined machine, which seems even faster than the French one, and the Gnôme-engined one has been waiting for Védrines to arrive from Spain. When the latter arrived on Wednesday morning ready to go for his three-hours test he sat patiently waiting from 4.30 a.m. till 10.30 a.m., while his mechanics endeavoured to get rid of water in the tanks, and then the wind got up and prevented further flying. Védrines leaves for America to-day (Thursday).

Mr. Cody tells me that his petrol consumption on the 120-h.p. Austro-Daimler is only 9 gallons an hour, which is about the same as the 100-h.p. Gnôme, but his oil consumption is only three pints an hour, for he used one gallon and one pint during his three-hours test. Also he uses "Vacuum A," which is about half the price of castor oil, so that his lubricant costs him about one-sixteenth that of the Gnôme—a fact which our friend Mr. Newton does not forget to rub in on every possible occasion.

Apparently the 80-h.p. Gnôme is a better engine than the 100-h.p., for it is alleged by pilots who use it to give practically as much power as the 100-h.p., with much less consumption. Mr. Pixton tells me that he actually used 21 gallons of petrol in the three-hours test, and that when he came down the officials found that he had an excess of 9 gallons of petrol and 2 gallons of oil above what he need have had for 4½ hours' flying, so he was carrying quite a big unnecessary load during his last half-hour fight with the wind.

Apropos the Maurice Farman biplane, it is worth noting that this machine, which has now passed all its tests except the road transport, is the ordinary standard machine, which has been flying for months as an "aero-'bus" at Hendon. Also its 70-h.p. Renault is the lowest-powered engine of any that have completed all the tests.

Some competitors do not apparently appreciate the exact reason for giving special credit for a fast 1,000 ft. climb at the beginning of the three hours' test. One of the judges kindly explained to me that the idea is to show that an engine which has done a forced climb at the start can go on working steadily afterwards, as proof that the machine can start out from its own lines climbing hard to get its full altitude before getting over the enemy's country, and can stay there for a reasonable period afterwards. A thoroughly sound test. It is rather a pity that a circular was not issued just before the competition giving the true inwardness of each test from the military point of view.—C. G. G.

A Hymn for Those Who Fly.

Lord of the last eternity,
Thou by whose breath the worlds suspire,
Who rule the elemental three,
The air, the water, and the fire,
O keep within Thy gracious care
Thy servants flying in the air.

God of the wind, by Thy dread laws
Preserve their path, that in their wise
They, traversing the airy floors,
May give Thee glory in the skies.
O keep within Thy gracious care
Thy servants flying in the air.

Before their pinions smooth the way,
That they in all their outgoings
May turn to Thee, O Lord, to pray,
And sense the shadow of Thy wings.
O keep within Thy gracious care
Thy servants flying in the air. T. H.

POSITION OF THE MACHINES REMAINING IN THE MILITARY TESTS UP TO SATURDAY, AUGUST 17TH.

No.	Machine.	Pilot.	Time Assembling.	Crew.	Date of First Flight.	Passed 3-hrs.' Flying Test.	Passed Climbing Test.	Time for First 1,000 ft.	Passed Speed Test.	Speed in m.p.hr. max.	Speed in m.p.hr. min.	Wind Speed in m.p.hr. during High Wind Test. max.	Wind Speed in m.p.hr. during High Wind Test. min.	Passed Test of Ploughed Field	Passed Gliding Test.	Gliding Angle. Best.	Gliding Angle. Mean.	Passed Road Transport.	Notes.
1	Hanriot (m)	Bielovucic	14m. 43s.	5	Aug. 1st	Aug. 12th	Aug. 3rd	2m. 45s.	Aug. 14th	75.2—59.9		31½—21		Aug. 16th	Aug. 13th	1 in 1 in		Aug 17th	Third to finish all tests.
2	Hanriot (m)	Sippe	22m. 58s.	5	1st	3rd	3rd	3m.	12th	75.4—66.6		—		—	9th	*not given*	6.4—5.3	—	—
3	Vickers (m)	Macdonald	53m. 30s.	6	1st	—	—	—	—	—		—		—	—	—	—	—	—
4	Blériot (m) (tandem)	Perreyon	59m. 57s.	4	1st	2nd	3rd	4m.	9th	61.1—52		29—25		12th	9th	*not given*	—	13th	Second to finish all tests
5	Blériot (m) (side-by-side)	Perreyon	1hr. 27m.	4	1st	3rd	3rd	4m. 15s.	13th	—		30—26		—	14th	—	—	—	—
6	Avro (bi)	Lieut Parke, R.N.	14m. 30s.	6	1st	—	—	—	—	—		28—15		—	—	—	—	—	Smashed and rebuilt.
10	Coventry (bi)	Raynham	1hr. 51m.	5	1st	—	—	—	—	—		—		—	—	—	—	—	Raynham *vice* Sopwith.
12	Bristol (bi)	Gordon England	54m. 15s.	4	1st	—	—	—	—	—		31—15		—	13th	—	—	—	—
14	Bristol (m)	Busteed	17m. 52s.	5	1st	12th	10th	5m.	—	—		—		—	—	—	—	—	Pixton *vice* Valentine.
15	Bristol (m)	Pixton	23m. 35s.	4	1st	14th	—	—	—	—		34—16		—	—	—	—	—	—
17	Martin-Handasyde (m)	Gordon Bell	1hr. 33s.	6	6th	—	—	4m. 45s.	—	—		—		—	—	—	—	12th	—
20	British Deperdussin (m)	Lieut. Porte, R.N.	2hrs. 55s.	5	3rd	—	—	—	—	—		—		—	—	—	—	—	—
21	British Deperdussin (m)	Védrines	7hrs. 15m.	5	2nd	—	—	—	—	—		—		—	—	—	—	—	—
22	Maurice Farman (bi)	Verrier	2hrs. 29m.	5	2nd	3rd	7th	4m. 50s.	9th	55.2—37.4		29—14		12th	9th	5.8—6.8		10th	First to finish all tests.
26	French Deperdussin (m)	Prévost	1hr. 56m.	5	1st	5rd	3rd	3m.	8th	69.1—59.1		29½—13		9th	9th	5.4—5.4		—	—
31	Cody (bi)	Cody	1hr. 35m.	4	1st	3rd	3rd	3m. 30s.	12th	72.4—48.5		27—14		12th	12th	5.6—5.3		—	—

The Week's Work.

MONDAY, August 12th.

Central Flying School (R.F.C.).—Capt. Fulton, R.F.A., on *Avro No. 2* three flights, two flights with Air Mechanic Hodgson and one with another passenger. Lieut.-Col. Cook, R.G.A., arrived from Lee-on-Solent on *Avro No. 1*, after good flight with wind, doing journey of about 50 miles in 40 mins. Capt. Fulton on *Bristol F.7*. four flights with Capt. Cordner for tuition.

Farnborough.—Lieut. Longcroft circuits on *B.E.1.*, flying well. Later Major Burke on *B.E.1.*, Capt. Raleigh on *B.3.*, and airship *Gamma* left for Salisbury. Mr. Raynham flew new Flanders monoplane over from Brooklands and later was out doing War Office tests. During the hour's test he had to make a hurried descent owing to lack of fuel, and in the rolling test he got on to some very rough ground and broke the under-carriage, machine having to be dismantled.

R.F.C. (Lark Hill).—Capt. Hamilton on Deperdussin, three flights, for 1 hr. 10 mins. Lieut. Fox afterwards on same machine made good flight for 20 mins. Capt. Conner on 70-h.p. Nieuport. Later Sergt. Ridd on 50-h.p. Nieuport, rolling for 10 mins. Capt. Raleigh and Major Burke arrived from Farnborough, former on the Bréguet and latter on *B.E.1.* British height record elevated to 9,500 ft. by Mr. de Havilland on *B.E.2.*, with Major F. H. Sykes as passenger. Details recorded in last week's issue.

Hendon.—Grahame-White School started at 5.50 a.m. under supervision of Messrs. Turner and Blackburn. Mr. Turner, after short test flight on Sommer, handed over to Mr. Wynne, who proceeded to do circuits at good height, finishing fine exhibition by *vol plané* from 250 ft. Lieut. Stopford followed with good steady circuits. Following this, Baroness Schenck and Capt. Halahan made several straights on *No. 7* machine, latter showing considerable ability, these being his first solo flights. Mr. Turner finished morning's work by taking up Mr. Marrick (new pupil) for flight on Howard Wright.

At Bleriot School.—M. Gandillon out early on *L.B.1.*, doing hops.

At Deperdussin School, in morning Messrs Brock and Harrison doing excellent circuits and figures of 8 on brevêt machine. Afterwards Mr. Harrison took his brevêt in good style, going well over 200 ft. Lieuts. Tucker and Bourke and Mr. Andrews each did three excellent trips on taxi. Mr. Gill four circuits on racer.

At W. H. Ewen School, Capt. O'Brien and Messrs. James and Edmund doing good practice on one of school Blériots. Mr. Sutton out on brevêt machine.

Brooklands.—At Sopwith School. In morning, Mr. Hedley first out on Farman flying for half hour, then handing machine over to pupils. Capt. Ellington put in some excellent straight flights for half hour.

L. Howard Flanders, Ltd.—Mr. Raynham started in morning as soon as fog lifted and arrived at Farnborough after bumpy journey. During course of morning, and in spite of the considerable wind, he put monoplane through trials.

At Bristol School, 4.30 a.m., Mr. Merriam first out alone. Then with Capt. MacDonell, Capt. Miller, and Lieut. Gaskell. Major Ashmore, Mr. Barnwell, Lieut. Gould, Lieut de la Ferté, Capt. Brabazon, and Mr. Summerfield all flying. Lieut. Arthur, with Capt. MacDonell and Capt. Miller. Mr. Merriam on Anzani monoplane. Mr. Bettington afterwards flying good straights, and Mr. Pickles doing straights on same. Mr. Merriam with Lieut. Pretyman, and Lieut. Glanville (last-named two new pupils).

Eastchurch.—M. Salmet flew overhead from Gravesend to Herne Bay at 4.35 p.m.

Gravesend.—M. Salmet arrived from Ipswich, covering 64 miles in 55 mins. Expected in morning, but arrived late in evening *via* Tilbury.

Weston-super-Mare.—M. Fischer out on Henry Farman. M. Hubert also flying same machine. Number of passengers taken up by both pilots.

TUESDAY, August 13th.

Central Flying School (R.F.C.).—Eng.-Lieut. Randall, R.N., long flight on *Short 13*.

Farnborough.—Major Burke with Lieut. Herbert as passenger arrived from Salisbury at 1,200 ft. Airship *Gamma* returned from Salisbury after staying night at Whitchurch owing to rough weather. Came out again at 9.30 p.m. and did half hour's flight over searchlight entertainment in Government House grounds, dropping prizes and making good landing in dark. Major Burke out on *B.E.1.* until too dark for further flying, taking passenger.

R.F.C. (Lark Hill).—Major Burke on *B.E.1.*, flying for 15 mins., after which another good flight. Major Moss on Henry Farman. Capt. Beor out on *B.E.4.* Later Lieut. Mackworth took over *B.E.4.* for 30 mins., two flights. Lieut. Fox out on 60-h.p. Deperdussin. Mr. de Havilland on *B.E.2.* doing three splendid flights, for 30 mins. In evening Major Moss on Henry Farman, Major Burke and Lieut. Herbert both out for short flights, afterwards proceeding to Farnborough, Lieut. Herbert as passenger with Major Burke. Capt. Raleigh out on Bréguet.

Hendon.—Grahame-White School. Wind all day, but on dropping somewhat in evening Mr. Turner took up Capt. Halahan. Shortly afterwards school was commenced by Lieut. Allen doing straights on *No. 7*, followed by Messrs. Kinhardt, Mateycka and Wilson doing straights, accompanied by Mr. Blackburn. Rest of evening's work consisted of circuits by Mr. Wynne, straights by Mr. Fuller, and Mr. Turner taking up Mr. Marrick.

At Aircraft Company, M. Verrier testing a new Maurice Farman biplane destined for British Army. At 5.15 p.m. flew for 40 mins. with passenger, and at 6 p.m. started for Farnborough carrying Lieut. Stafford as passenger, but was compelled to return, as he ran into thunderstorm about five miles from aerodrome.

Brooklands.—At Vickers School. In morning Mr. Knight on Vickers V flying circuits at about 500 ft. Captain Stott and Mr. Geere on Vickers 2 putting in much good work for nearly two hours, and both showing considerable promise.

At Sopwith School, in morning, Mr. Lane and Captain Ellington got through great deal of uesful practice.

At Bristol School, Mr. Merriam out testing, then with Lieuts. Fazal and Abdullah (Turkish officers) for first trip, afterwards with Lieuts. Pretyman and Glanville for tuition. Lieut. Arthur, with Capt. Miller and Lieut. Parker, and Mr. Pickles up with Lieut. Loultcheff, Mr. Merriam with Lieut. Penn-Gaskell, Capts. MacDonell and Styles. Mr. Merriam testing monoplane flying high, and then handed over to Mr. Bettington, who, after a few straights, in landing ran into fence, damaging front spars, skid-tusk, and propeller. Messrs. Summerfield and Barnwell and Capt. Brabazon also flying.

Broadstairs.—M. Salmet, on Blériot, arrived from Gravesend, having gone to Ramsgate and back. Large crowd all along coast to see them. Apparently none of them have ever had the brilliant idea of making a cheap railway trip to Eastchurch, where they usually do as much in a day as the much boomed *Daily Mail* air corps does in a week. On his way, M. Salmet made circuits round Herne Bay and Margate.

The Swale.—Mr. F. K. McClean resumed flight from London on Short hydro-aeroplane. Got as far as point opposite Sittingbourne in safety, but on coming down to river fouled sail of barge and damaged machine.

WEDNESDAY, August 14th.

Central Flying School (R.F.C.).—Capt. Gerrard on *Short 43*, with Asst.-Paymaster Lidderdale, R.N., and Air Mechanic Gardiner for tuition. Capt. Broke-Smith long flight on *Bristol F.7*. Thick fog then stopped flying for an hour. Then Lieut.-Col. Cook, R.G.A., on *Avro No. 1*, two flights, one for height test for superior brevêt.

Farnborough.—Lieut. Longcroft on *B.E.1.*, several long flights. Major Burke on *B.E.1.* taking passenger. Maurice Farman arrived from Hendon piloted by M. Verrier with passenger. In evening Major Burke on *B.E.1.* one flight. Lieut. Longcroft on *B.E.1.* one flight. Wind too treacherous for further flying. Airship *Gamma* came out at 9.30 p.m. in strong wind and made two good flights over Government House grounds.

R.F.C. (Lark Hill).—Capt. Conner on 70-h.p. Nieuport, two flights. Lieut. Fox on Deperdussin, 15 mins., after which on *B.E.2.* 45 mins. Later Major Brooke-Popham, two good flights on *B.E.2.* This the first time Major Brooke-Popham had ever flown this machine.

Hendon.—Grahame-White School opened at 6.30 a.m. Mr. Blackburn on *No. 7* to test air, after which Mr. Wynne did excellent circuits on same, and Baroness Schenck, Capt. Halahan, Lieut. Allen and Mr. Fuller all did good straights. Messrs. Wilson and Marrick straights under guiding hand of

Mr. Blackburn. In evening school out again for about half an hour, Mr. Wynne doing circuits and Lieut. Stopford straights, after which weather stopped school work.

At Aircraft Company, M. Verrier left Hendon at 7.15 a.m., arriving at Farnborough at 7.50, with Lieut. Stopford, who much appreciated steadiness of machine, despite gusty wind. He then performed necessary tests required of each machine, afterwards taking up Mr. Green, of Royal Aircraft Factory, as passenger.

At Deperdussin School, Mr. Brock two figures of 8 on brevêt machine, then practising landing—very good. Lieut. Bourke, Mr. Andrews, and Mr. Spratt on taxi, all doing well. Mr. Spratt's first attempt, progress good. Lieut. Gill four circuits on racer. In evening Mr. Brock straights and landing to mark on brevêt machine (landing good). Lieut. Bourke and Mr. Spratt and Mr. Andrews all rolling on taxi, one turn each. Mr. Gill 1½ circuits on racer.

At Blériot School.—Quite a lot of practice morning and evening. Mr. Hall on *L.B.2.*, circuits, Mr. Sacchi straights on same. Mr. Clappen similarly; glad to see temperature of nether extremities not lowered in slightest degree by recent unpremeditated *atterrissage*. Mr. Reilly had lesson rolling on *L.B.1.*, and shows himself quite quick on controls. In evening Messrs. Sacchi and Clappen doing straights on *L.B.2.*, and Mr. Hall right-hand turns at about 40 ft. M. Gandillon rolling on *L.B.1.*

W. H. Ewen School out at 6 a.m., Messrs. J. H. and H. James and Capt. O'Brien making splendid progress in straights, and Messrs. Ware and Edmund handling brevêt machine very nicely.

Brooklands.—At Vickers School, in morning, Mr. Knight out testing the air on Vickers V, and afterwards Capt. Stott and Mr. Geere on Vickers II for many excellent straight flights.

At Avro School, Lieut. Parke in evening went out on the school machine to pay a visit to Walton Regatta, returning about 7 o'clock. This old machine is becoming noted for its many cross-country flights.

At Bristol School, 4.45 a.m., Mr. Merriam testing, and then with Lieuts. Pretyman, Glanville, and Abdullah for tuition. Lieut. Arthur with Lieut. Fazal and another pupil. Mr. Vickers with Lieut. Pretyman. Mr. Merriam on other school monoplane to test for Prince Cantacuzène, who afterwards took machine over, and was flying splendidly, but unfortunately in landing broke propeller and damaged front engine plate. Mr. Merriam then with Lieuts. Gaskell and Parker and Captain MacDonell. Major Ashmore, Mr. Barnwell, Mr. Summerfield, Captain Brabazon, and Lieuts. Playfair, de la Ferté, Wanklyn, and Gould, and Messrs. Cheesman and "Darracq" all flying.

In evening Mr. Merriam testing repaired biplane, but too windy for school work.

Broadstairs.—Exhibition flights by M. Salmet on Blériot round Broadstairs, Margate and Ramsgate.

Eastbourne.—Mr. Travers arrived at 6.35 a.m. on Paulhan-Curtiss, having left Cowes at 4.50 a.m. On starting again he smashed his propeller in heavy sea. Mr. Louis Noel on Henry Farman left Cowes 5 a.m., also reached Eastbourne. Rough sea caused heavy landing and broke strut in chassis, machine being towed half a mile to shore by boats.

Norwich.—Mr. B. C. Hucks on Blériot gave fine exhibition flight round city. In evening machine illuminated by C. A. Vandervell's electric system with searchlights at head and tail. Fine display when flying in gathering darkness.

THURSDAY, August 15th.

R.F.C. (Lark Hill).—Lieut. Fox out on *B.E.2.*, flying for 35 mins.

Brooklands.—At Spencer School. The Spencer biplane has now returned to Brooklands after making successful exhibition flights at Sherborne, in Dorset, and Martock, in Somerset. At both these places, it will be remembered, the late Mr. D. G. Gilmour flew last year. Gusty wind prevented school work.

At Bristol School, 7.30 p.m., Mr. Merriam testing, but found not fit for pupils.

Folkestone.—M. Salmet on Blériot flew from Broadstairs to Folkestone in strong westerly wind, taking 53 mins. to cover 16 miles from Broadstairs to Whitstable and 35 mins. for 20 miles to Folkestone. Before leaving Broadstairs, M. Salmet gave exhibition flight. After flying over regatta at Folkestone he returned to Whitstable and landed there. In evening he flew back to Folkestone and again gave an exhibition flight before knocking off work for the day.

FRIDAY, August 16th.

Farnborough.—Major Burke on *B.E.1.*, Lieut. Longcroft on *B.E.1.*, both flying well in very gusty wind.

Hendon.—Grahame-White machines out at 5 a.m., but after test flight by Mr. Blackburn rain stopped all possibility of school work.

At Blériot School, Mr. Sacchi straight on *L.B.2.*, but stopped by wind.

At Deperdussin School, in morning, Mr. Brock practising landings on brevêt machine. Naval Cadet Robinson making straight flights on same, both making good landings. Lieuts. Tucker and Bourke, and Messrs. Andrews and Spratt and Phelps all rolling on taxi. Lieut. Gill two circuits on racer.

W. H. Ewen School out early, and got considerable practice.

Brooklands.—Gusty wind prevented school work except for Bristol pupils who have not yet reached solo stage.

At Bristol School, Mr. Merriam, with Capt. Price (new pupil), afterwards Messrs. Aziz, Tethe, Mehmed Ali Abdullah, and Fasal for tuition. Then with Capt. MacDonell, Lieut. Penn Gaskell, and Mr. Cheesman.

Eastbourne.—Mr. Travers, on Paulhan-Curtiss, arrived from Brighton. Made short exhibition flight in evening, but heavy sea made it difficult for planes to pull floats out of water.

Eastchurch.—Bréguet engine tested, rather troublesome to start, and having run a few minutes broke pump coupling.

Folkestone.—More exhibition flights by M. Salmet on Blériot in very nasty wind. According to account in *Daily Mail*, he was playing distinctly dangerous tricks right over the heads of the crowd. One might suggest that some of these much boomed exhibition flights deserve the attention of the Royal Aero Club which has objected so much to apparently harmless flights up the Thames by serious aviators.

SATURDAY, August 17th.

Hendon.—Weather too bad for school work, but the usual exhibition and passenger flights made during the day, as reported elsewhere.

Brooklands.—No flying during day owing to frequent showers of rain and gusty wind.

Birmingham.—Flight in Henry Farman hydro-aeroplane by M. Fischer over Edgbaston reservoir. Made two successful flights, then started again almost in dark. When starting and about 15 ft. above water, strut on one of floats broke, and it is reported that the machine "suddenly collapsed." It was also reported that M. Fischer "jumped clear and escaped unhurt." Full details are lacking, but it sounds as if a wire came loose and caught the propeller, or as if a strut fell out and was similarly caught. This indicates the need for guard wires, a precaution which the majority of aviators neglect.

Brighton-Shoreham.—M. Salmet, on Blériot, arrived from Folkestone, passing over sea front at Hastings, Eastbourne, and Brighton, and on arriving made pretty exhibition flight.

Eastchurch.—Capt. Gordon, R.M.L.I., and Lieut. Hewlett, R.N., took school machine *No. 34* out for a few minutes.

Margate.—Mr. Louis Noel, on Henry Farman hydro-aeroplane, arrived from Eastbourne, carrying mechanic as passenger late in evening despite nasty wind. It was practically dark when he passed Folkestone, and he took his course almost entirely from the lights of the various coast towns, arriving at Margate at 8.5 p.m. Altogether an excellent flight, and one is glad to see Mr. Noel gaining the reputation he has long deserved.

SUNDAY, August 18th.

Brooklands.—Showers of rain and high wind entirely prevented flying throughout the day.

Eastchurch.—Mr. McClean out on 70-h.p. tractor for 30 mins., putting in good flight.

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Hendon.—Exhibition flights, as per special note.

W. H. Ewen School out, but too much wind for pupils. Mr. Ewen brought out 60-h.p. two-seater Caudron and took up number of pupils for instructional flights. Mr. S. Freshney, of Lincoln, also had passenger flight with Mr. Ewen.

Work on Windermere.

The past week has seen a good deal of flying here, in spite of a good deal of rain. Mr. Gnosspelius was out once with his hydromonoplane, but after one or two short "straights" returned on account of engine trouble.

Water Hen made 24 trips, carrying twenty passengers in all, under Mr. Stanley Adams's careful and clever piloting.

The Deperdussin hydromonoplane was flying several times, both with and without a passenger. On two trips Commander Samson, R.N., took the wheel, and on his return was overheard to remark that she was "as safe as a church." All the same, the machine threw up a lot of spray, and appeared to bump on the water too much at medium speeds.

The Week-end at Hendon.

The weather, after its week-day calm, again broke out into storm on Saturday, and the ordinary races had to be abandoned. M. Desoutter made an excellent flight at 4.30 on the Gordon-Bennett Blériot, followed shortly afterwards by M. Nardini on his Deperdussin monoplane. Mr. Valentine then made a flight on the same Deperdussin, the first on this machine since last year.

Mr. Richard Gates took the new 80-h.p. Gnôme three-seater Farman into the air just after five o'clock. The start to this flight was impressive and startling, the machine banking hard over to the left and then over to the right just after leaving ground. He made a flight of over ten minutes at a height of about 2,000 ft., landing well, with his engine missing badly. The explanation of the erratic beginning was that the controls were almost too stiff to move. Even Mr. Gates, whose muscular formation resembles that of a younger Sandow, was fatigued after the flight.

Mr. Blackburn flew in an astounding manner on the antique Grahame-White school biplane No. 9. This machine, from sheer lack of energy, flies customarily with its tail sweeping the ground and its elevator high in the air. No pilot of whatever skill could make this aeroplane fly in any but a hazardous manner. It should not be flown in high winds.

As dusk was falling a rapidly-arranged race was run off between Valentine (50-h.p. Gnôme Deperdussin monoplane), Blackburn (50-h.p. Gnôme Grahame-White biplane), Desoutter (50-h.p. Gnôme Blériot monoplane), and Turner (50-h.p. Gnôme Grahame-White biplane). The competitors finished in this order, after which the remnants of the crowd silently vanished away.—R. T. R.

On Sunday, in spite of the doubtful weather, there was a goodly crowd of people at Hendon to witness the fine exhibition flying which took place, Mr. Lewis Turner starting at 3.30 promptly on the Grahame-White biplane, and doing some fine banked turns, switchbacking, etc. This was followed at 4.5 by a 10-minutes flight by Mr. Nardini, and then Mr. Desoutter at 4.50 went up for 30 minutes. At 5.50 Mr. Blackburn gave an exhibition flight of about 15 minutes, during which time Mr. Turner was up with a passenger. At 6 p.m. Mr. Nardini was again giving the spectators a fine exhibition for about 20 minutes, after which Mr. Turner went up again to give an exhibition flight for 15 minutes before taking up another passenger. The last exhibition flight was given by Mr. Blackburn, starting about 7 o'clock.

Mr. Fenwick's Fatal Accident.

By the death of Mr. R. C. Fenwick on Salisbury Plain on Tuesday, the 13th inst., British aviation has suffered a greater loss than has befallen for a very long time. One may grieve deeply for the death of a personal friend and yet recognise that his departure does not mean the loss of any ideas which would have helped aviation forward. In Fenwick we have lost not only a pilot of more than usual pluck and promise, but a man of ideas, who with proper means at his disposal would have produced new things of great value in the future.

Fenwick was born at South Shields in 1884. The writer first made his acquaintance early in 1910, when he was engaged in the building of a strange type of biplane for Mr. W. P. Thompson, of Liverpool, in Mr. Handley Page's works at Barking. This machine had the engine and pilot slung low down below the lower plane. Though it never became a really successful flier, Fenwick took his certificate on it in November, 1910, at Freshfield, his brevêt being No. 35 and dated November 29th; so it will be seen that though his name was little known he was one of our very early pilots.

Some little time ago he severed his connection with Mr. Thompson and Planes, Ltd., and, together with his friend, Mr. Swaby, started up at Freshfield as the Mersey Aeroplane Company, to build the machine on which he was killed.



The late R. C. Fenwick.

The actual happening of the accident seems fairly clear. Fenwick had gone out, fortunately without a passenger, to test the machine. At the time it was quite calm. When he reached the first wood on the way to Fargo the wind sprung up suddenly in one gust to twenty miles an hour, four gusts being shown on the anemometer in quick succession. The machine, which was at about 300 ft., was seen to rock violently as the first gust struck her, then she dived as if the pilot intended to pick up speed by doing so. Then she came up, and continued to climb. Again the same thing happened, but this time she refused to come up, and dived plumb vertically for 200 ft., striking the ground nose first and turning over. Fenwick was killed on the spot. It must be remembered that no one except Fenwick had ever flown the machine, and that he and Mr. Swaby had been working practically by themselves, so that they were deprived of the salutary if unpleasant criticisms of other pilots and constructors such as those which have led to alterations for the better in several machines which have had dangerous points as well as excellence in other ways. Also, he was used to flying the machine, which had certainly flown some thousands of miles, in the steady sea winds at Freshfield, so naturally a machine might have been produced which, while excellent in many ways, would have control surfaces insufficient to hold the machine in such fierce gusts over the hilly and broken ground of Salisbury Plain.

Another theory has been advanced as to the cause of the accident. It is known that the rudder bar of the machine was so placed that the pilot's heels rather than the hollow of his foot rested on it. Now Fenwick went up in a pair of shoes with smooth rubber soles, which were presumably wet when he got into the machine off the wet grass. It is therefore quite probable that the second pitch coming so quickly after the first, jerked his feet over the bar so that he fell into the front of the machine on top of the control lever and held it down. The theory is very plausible, and is a strong argument in favour of a safety belt, and a safety elevator bar such as that suggested some time ago.

As it is, R. C. Fenwick, full of pluck and ideas as he was, lies in his grave, a genuine martyr to the progress of aviation, thanks to the supineness of English business men who would not assist his enterprise. After all, it was a better death than dying of starvation in a garret after having one's ideas stolen, which is the lot of too many brilliant brains in this age of commercial piracy. May this be some consolation to poor Fenwick's friends. One can only hope that his close friend and partner, Mr. Swaby, will be able to carry the ideas in the machine to ultimate success, for that would be the best memorial to the gallant little sportsman who has left us.

C. G. G.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.

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THE LEADER OF BRITISH AVIATION.



Mr. Cody flying his 120-h.p. biplane, with its new protective body and triangular rudders, over Salisbury Plain on Saturday last. His is not only the first British machine to finish the tests, but it has in many points beaten the leading foreign makes. For his pluck, perseverance, and originality, and his ability as designer, constructor, and pilot, Mr. Cody is entitled to be called The Leader of British Aviation.

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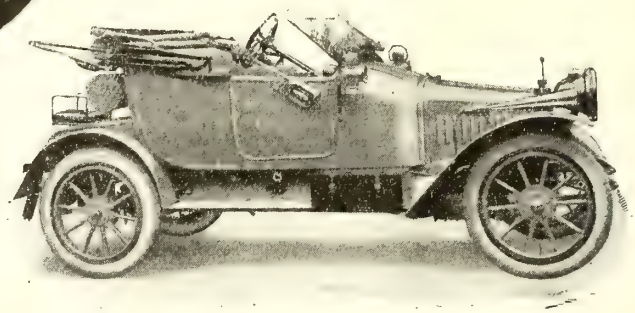
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MATTERS OF MOMENT.

THE BRITISH AEROPLANE MANUFACTURER.

Just at present opinions of the British aeroplane manufacturer, from the estimates of general officers down to those of journalists, seem to be divided as to whether he is an abject futility or the victim of cruel hard luck, all opinions being unanimous as to the indisputable fact that he has made a precious poor showing in open competition.

There is much to be said on both sides, and so far as journalists are concerned it has been pretty well said, on the one side by Mr. J. Owen in the *Westminster Gazette*, who, with fluency and a certain amount of inaccuracy, due to a lack of comprehension of some salient facts, condemns the British manufacturer root and branch, and on the other side by Mr. C. C. Turner, who with somewhat less vehemence but considerably more inside knowledge, defends him in the *Observer* and *Pall Mall Gazette* on all points where defence is legitimate, especially against Mr. Owen's ludicrous charge that the workmanship of British machines is bad. Presumably Mr. Owen cannot understand that a good cabinet-maker's job, with plenty of French polish on it, does not necessarily constitute reliable workmanship.

However, there is no doubt that the British manufacturer does want shaking up. Almost the first man on Salisbury Plain to whom the writer spoke on arriving last week said so. He was one of the best British constructors—a man on whose work one would trust one's life, and on whose word one would trust one's fortune. His view was that the technical Press had been too kind to the manufacturer, and that in taking his part against hostile criticism and official ignorance we of the Press had given him an undue impression of his own cleverness and ability, which may or may not be true.

Strangely enough, almost the last persons to whom the writer spoke before leaving the Plain for London last Saturday night were two officers whose good or bad opinion may mean many thousands of pounds in or out of the pockets of the British aeroplane industry, and they said almost exactly the same thing as that extremely enlightened manufacturer in almost the same words. The British manufacturer needs stirring up. It is not "Wake up, England," that is needed as a war-cry, but simply "Do have some common sense, you people who build aeroplanes."

There is a story of a certain cavalry regiment which, having misconducted itself grievously on the occasion of a general inspection, was reproved in a manner related thus by a private of the regiment. "The general, 'e calls the colonel up and tells 'im that even allowin' for us 'avin' two 'undred recruities and three 'undred raw remounts, we still wasn't fit to be called a regiment in 'Is Majesty's Service. Colonel 'e goes into the orf'cers' mess and tells the squadron commanders wot 'e thinks of them. Then they goes and 'ands it in 'ot and strong to the sergeants. The sergeants comes into the barrick-rooms and gives us wot for. An' we goes out into the stables and kicks our 'orses in the stummick." And yet, strange as it may seem, this rough-and-ready method evolves some of the finest cavalry the world has seen. It suggests that a similar comprehensively graded scheme of reproof might do the aeroplane industry a world of good.

Starting with a formally-worded letter from the Judges' Committee of the Military Aeroplane Competition to the head of every British firm making aeroplanes, whether competing or not pointing out some of the chief points in which British aeroplane makers have failed to give satisfaction, the reproof would probably end by the smallest boy in the smallest constructor's workshop being well thumped with a chassis strut, and it would do everyone good all round.

The fact remains that our pilots are as good as those born abroad; our designers are as good mentally, if less experienced; our workmen, once they know their jobs, are, if anything, better; our material, both wood and metal, is better when one knows where to buy the right stuff; even our managing directors are, on the whole, not without a certain modicum of commercial ability in its wider sense, namely, the knowledge of when and how to spend money in order to get it back multiplied many times over. Yet on the whole we have made a poor show in the competition as compared with certain foreign firms.

The trouble really seems to be rather due to a lack of *esprit de corps* than anything else. Manufacturers have been "let down" by their pilots or their mechanics. Pilots have been deceived as to the flying ability of the machines they have been engaged to fly. Mechanics have become restive or lost heart owing to nagging or bullying by their employers. There has been little or none of that combined determination to get through as quickly and as neatly as possible, which is the secret of the success of certain machines which have done well.

Even before the trials began there was a lack of thoroughness in the way firms went to work, as is shown by the fact that most of the British machines weighed anything from 500 lbs. to 200 lbs. more than their "estimated" weight, the outstanding exception being one machine which came within 5 lbs. of the weight declared by its maker. On the other

hand, we find two machines of one foreign make within 1 lb. of each other, proving the exactitude with which their constructor makes his calculations.

The kind of thing that went on among British firms was somewhat thus—A certain machine had certain tests to do. The weather was bad, so it sat in its shed doing nothing. Then the weather cleared, and the pilot wanted to start. Tanks had to be filled and a few little adjustments made. Then the engine refused to start, and after fiddling with it for an hour or so it was too late to begin. Next day, work done on the engine, weather cleared, pilot gone away for a few hours, returned too late to start. Another day, pilot and engine ready, but there was water in the petrol or dirt in the oil. Another day, everything ready, but the weather looked threatening, so the pilot hung about waiting for it to improve instead of seizing his chance to do as well as he could, and giving notice that he would go again if the weather became really good.

No one seemed to believe that the machines would or could be judged *on their merits*, taking into consideration the circumstances under which their tests were done. Everyone, almost, waited for the ideal day, which only came last Saturday afternoon, and then nobody was ready to take advantage of it.

The result has been heart-breaking to the military authorities, at any rate to those who believe in aviation and are practically staking their military career on its success. The Royal Flying Corps wants machines badly and the War Office is ready to buy all the machines at Lark Hill if they will only pass their tests, but obviously, certain qualifications having been laid down, machines which have been deliberately entered to show that they possess those qualifications cannot be bought till they have proved their ability.

Even outside the competition the British manufacturer has not come up to expectations. A number of machines were ordered months ago from several makers. One maker only of them all has delivered his machines—and, by-the-way, it is surprising that after his repeated successes, he has not had orders for more, in accordance with Colonel Seely's expressed intention to foster the growth of a healthy industry.

Two other makers have submitted their ordered machines for acceptance, but one has suffered from certain remediable defects, and the other has not yet started on the acceptance tests. The rest have not even produced their first machines yet.

Our aeroplane manufacturers seem to be suffering from the same kind of trouble as that expressed by the man who, lamenting the disappearance of good old English ale, remarked that in modern beer there was "too much science and not enough hops."

In our aeroplane making there is too much theory and not enough practice, too much talk and not enough do, too much scientific experimenting and not enough aeroplane building, too much of Eiffel and not enough of the Cody or rule of thumb school.

We have got the capital, the business men, the designers, the workmen, the material, and the pilots in this country, but no one seems to have combined a portion of all six under one roof. Always one or other element seems lacking. Hence our dismal failure when it comes to the pinch. We shall worry through somehow, but it is a heart-breaking job.

WAR OFFICE MONEY AND AVIATION PRIZES.

It will be remembered that one of the rules of the Military Aeroplane Competition is that the judges may at their discretion withhold or vary the amount of money to be given in prizes. In view of the comparative paucity of entries, and the fact that practically all the really good flying has been done by about a half-a-dozen makes of machines, it seems probable that the judges may avail themselves of this rule and reduce the amount of prize-money.

However, as a certain definite amount of money has been allotted for aeroplane prizes, presumably the military authorities are at liberty to spend it as they please, and it would not be a bad idea if they were to follow the example of the German War Office and present valuable prizes for other competitions.

It was noted in The Aeroplane last week that at the German hydro-aeroplane meeting at Wilhelmshaven the German Government are putting up a prize to the amount of 25,000 marks, or about £1,250, and that they have offered to purchase the winning machine for 30,000 marks, or about £1,500. Further, in a race round Berlin for prizes to the value of £3,000, the Ministry of War has offered a special prize of £500. It would certainly offer considerable encouragement to British aeroplane makers and pilots if our authorities could be induced to make similar grants whenever an important competition is about to take place.

It is rumoured that a big aeroplane race is to be organised for the month of September or October from London to Manchester and back. Such a race as this is through a comparatively thickly-populated portion of the country, and passes close to a number of large manufacturing towns, where it is desirable to stir up interest in military affairs. Consequently, the military authorities would be quite justified in spending money on a prize, provided of course that that prize was allotted expressly for a type of machine of value for military purposes. For example, it might be given for a machine carrying an observer, and of a type approved by the authorities for its military value apart from mere speed.

There might even be a special prize for a class for military machines, and prior to the actual start of the race these machines might be asked to undergo a dissembling and assembling test, and a road transport test similar to that imposed on the machines in the present military competition, and it might be made a condition that the observer on the machine entered in this class is to have a certain clear field of view measured on the same system as that adopted at Lark Hill.

By introducing a special class on these lines into every important competition the military authorities would be enabled at very small cost to maintain indefinitely a steady improvement in the construction and design of military aeroplanes, for the only expense to which they would be committed would be the amount of the prize, and the expense of sending inspecting officers to the various places where the competitions take place, which would be considerably less than that entailed by building special sheds for the housing of machines in exclusively military competitions, and in maintaining a number of officers and men for weeks on end while the competition dragged itself through.

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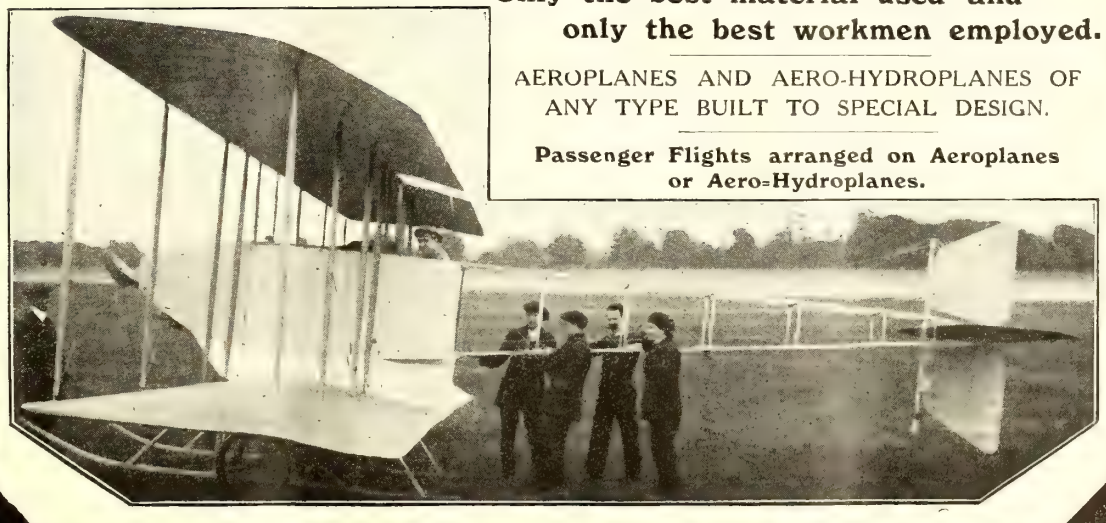
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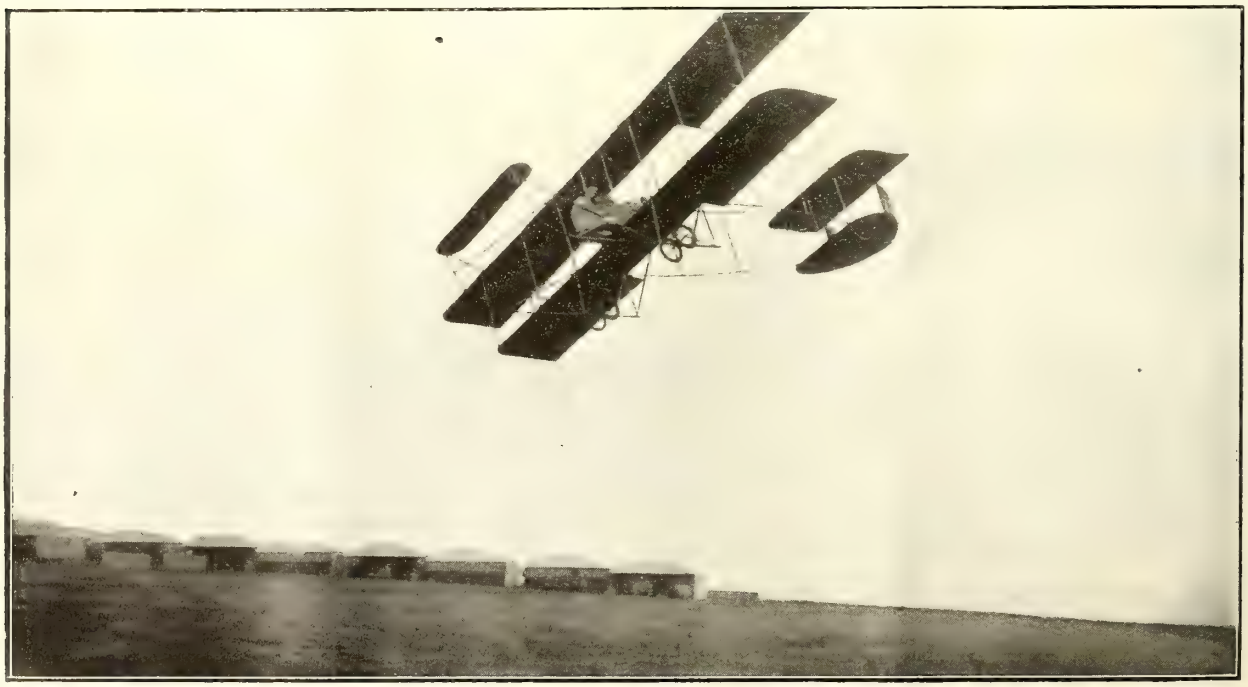
Cavalry and the Aeroplane.

BY W. E. de B. WHITTAKER

There are two great principles dominating the practice of the art of war—the gaining of information as to the movements of the enemy's force and rapid action following the acquisition of such information. Infantry forms the body of any army, but it needs many complementary bodies attached to assist it in its work. It needs eyes, and cavalry supplies them. Since the earliest days of war, when the world first took form, the mounted man has had two great duties, which come to him by reason of his attributes—the searching for news and the completion by shock action of the demoralisation of a half-broken enemy. To those who read the cheaply gilded popular histories of warfare the vision of cavalry is one of flashing swords, jingling spurs, and deathless charges to victory or the end. But reality is very grim and very different from the creations of the imagination. The shock tactics of cavalry are only employed against unbroken troops when it is desired to divert attention from an important move in another portion of the field or to induce the G.O.C. the enemy to strengthen the attacked point and thus weaken more vital sections of his line. Such charges invariably fail in their immediate object, but succeed in their general intention. That is, unbroken infantry can invariably resist cavalry attacks with ease, as when Uwarrow's ten squadrons of Russian cavalry charged the infantry of the 5th Corps (French) at Austerlitz, and, again, when General de Preuil took the Cuirassiers of the Guard against the Prussian infantry at Mars la Tour in 1870—both heroic charges and both failures.

But more important from the point of view of military aviation are the scouting duties of the cavalry. No army moves in hostile country without a far-flung screen of cavalry, collecting information and conveying warning. The cavalryman, from the nature of his service, is a trained scout, and until the last year or so was the only effective eye of the army. To-day the aeroplane enters to aid him in his duties. Those who have flown brilliantly at flower shows and garden parties are a little apt to think that the aviator can entirely supersede the cavalry scout. The aerial investigator has merely to rise to a great height, and the enemy's plan of campaign, including the hidden thoughts of the G.O.C., are divulged to him as he descends in a graceful spiral. It is so easy, so simple. One has merely to look and one sees all. Those who have the deepest knowledge of the theory and practice of war, and at the same time are not ignorant on the subject of aviation, hold definitely that the aerial scout supersedes nothing—he augments. If it were possible for an observer in an aeroplane to note accurately and with great speed all that was within his range of vision, then even he would not replace the land scout. No observer, however skilled, can bring down a perfect report of what came within his view, and the haste of his actions is likely to make even that little which he is able to write inaccurate to a certain extent. But, assuming his observation to be perfect, he is still only a pawn in the game, and not a piece. His view of the world is flat and as maplike as may be. Contours have no meaning and the difficulty or ease of progression over a patch of ground is not apparent from above. And he is to a great extent at the mercy of the natural formation of the ground.

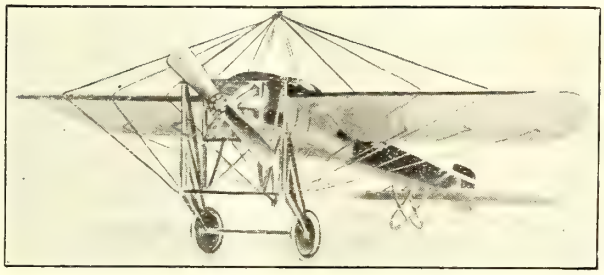
The aeroplane observer's reports are made entirely from the use of sight. He has to rely altogether on that which he can see or imagines he can see. In this he differs greatly from the cavalryman. The mounted scout is able to acquire a large quantity of information from the inhabitants of the country. If he gains no positive knowledge he can, by a judicious study of the negative news he receives, give valuable points to his G.O.C. The conduct and bearing of the native frequently explain much. Jubilation on the part of the inhabitant means possibly a strong force of his country's troops are in the vicinity. Despondency sometimes means that the land is not held by armed forces. Intuition and a little power of deduction carry a scout far on his way. The land scout can also read the signs of the ground. Foot-prints mean something to him. The movements of birds and animals unlock many doors of news. The aerial investigator has none of this. He has to rely entirely on the aspect of things from above. Masses of men, fortified positions, and entrenchments are his sole guide. The detailed work of the ground is cut off from him. He has but little



M. Verrier, on the Maurice Farman, evoluting over Salisbury Plain on Saturday last

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time in which to think things out, and his reports are the work of crowded minutes and not of hours. He may say that a position is easy of attack because from above the natural obstacles, such as exaggerated contour and marshy land, are not obvious to his sight.

Thus the aviator does not supersede the cavalryman in the work of scouting. He helps. Cavalry has no less brilliant a future because the secret of flight is revealed. There are generals of renown who will treat the information from both sources as of equal value, and invidious distinctions will not be drawn.

The shock action of cavalry hardly concerns the aviator in the ordinary sense of the word. Despite the prophets of the Daily Press, no general is likely, it would seem, to order trained military pilots to sacrifice their lives and their machines in a wild swoop on dense masses of unbroken infantry. The present infantry formation in action is far more extended in nature than it was thirty years ago, and it would need a large number of aeroplanes to make any impression. Again, it is unlikely that military aviators of great courage and lengthy training would willingly condemn themselves to certain death. To lead a forlorn hope is safer, as there is always a possibility of escape. The psychology of courage is strange.

In the *United Service Magazine* for August there is an article by "Vedette" on the relations of cavalry and the aeroplane. I have been unable to obtain a copy of the magazine in the space of time open to me, but the brief *précis* of the article which I have seen shows it to be one of interest. He argues that the use of the aeroplane in war will relieve the cavalry of a great proportion of its duties so far as extended reconnaissance is concerned. This will permit mounted troops to remain in closer order than is customary at present. Thus there will be at hand denser masses of cavalry for concerted rapid shock action against the enemy than is now the case. The widely-spread screen of cavalry will disappear. For reasons stated above as to the acquisition of local knowledge, it is probable that "Vedette's" views are slightly too revolutionary; but his remarks are, so far as one can personally judge, accurate in essence.

(To be continued.)

Aeroplanes and the Army Manœuvres.

The rumour which has got about with a semi-official air that 30 aeroplanes are to be used during the Cavalry Manœuvres in Berkshire is something of an exaggeration, for, as a matter of fact, only four aeroplanes are to be used. The pilots will probably be Captain Conner, R.F.A. (Maurice Farman biplane), Captain Hamilton, R.F.A. (Deperdussin monoplane), Lieut. Fox, R.E. (Avro or *B E* biplane), and Second Lieut. Gordon Bell, Royal Flying Corps Reserve, on probation (Hanriot monoplane). Each machine will carry an officer-aviator as observer, and the whole will be under the command of Major Brooke-Popham, commanding No. 1 Aeroplane Squadron, Royal Flying Corps.

The aeroplane camp is to be at Wallingford, and the machines will be dispatched there probably about September 1st, the Manœuvres actually commencing on the 6th.

The Cavalry Division will move into the Army Manœuvres area in East Anglia about September 20th, and the aeroplane forces there will be considerably augmented. Probably all the Army aviators, together with a number of the more capable fliers now on probation as officers of the Reserve of the Royal Flying Corps, will take part. Those machines which have by the end of this month passed their tests satisfactorily in the Military Aeroplane Competition on Salisbury Plain will be purchased to provide sufficient aeroplanes for their use; the aviators and machines being equally divided between the invading and defending forces.

Italian Notes.

As if inspired by the magnificent response to the "Wings-for-Italy" appeal—nearly 3,000,000 francs for which have so far been received—Italian officers have been piling up a glorious roll of overland and sea flights during the last month, chiefly on Nieuports and Bristol machines. May the machine of the former build, said to have been converted recently for hydro-aeroplane work at Spezia, not be a canard!

As for the Bristol a special training ground has been started for those who are learning to pilot them at the Venaria, a headquarters of the cavalry on the opposite side of Turin, to the Mirafiori ground, whence four officers left in a batch one evening last week to visit the new school, one of whom flew a Nieuport with a L.U.C.T. motor, all returning comfortably in the dusk. The one and only Savary has been seen, too, over Turin after months of rest.

Cameri, of which I have had little to say for some time, is to be developed as a training camp for non-commissioned officers.

The Friuli, another light monoplane on standard lines emanating from the brains of Signor Alceo Verza, has recently done a very fine cross country flight with a low-powered Anzani. Verza and the Helios engine were not unconnected.

Amerissages being apparently more attractive, at any rate in summer, than the common garden or ploughed field landings, many of our best men are getting the hang of things at Juan-les-Pins. As I foresaw, the Italian Government has not taken long to realise the importance of the amphibious plane for this country.

A most significant programme of dirigibles to be laid down as soon as possible has just been published. Apparently they will be stationed along the frontier, to judge by the several hangars in the north-eastern district.

Since my last news-letter civilians, too, have been very energetic at exhibitions all about the country, and altogether I never remember so much doing and so few smashes. There will be a show at Milan about Christmas.—T. S. Harvey.

Dangerous Flying.

A Southampton reader writes:—"I observe that in your last number of The Aeroplane you complain of the danger of M. Salmet's flights at Folkestone during the *Daily Mail's* advertisement tour. If his performance on that occasion in any degree resembled what took place on Southampton Common on Thursday evening, the 22nd, I certainly think that your criticisms were more than justified.

"During the last two years I have had the good fortune to witness exhibition and competitive flights, both in France and England, by some of the best men who have ever handled an aeroplane—among others Latham, Morane, Legagneux, Grahame-White, Simon, and (last but not least) Hamel, on a recent Sunday afternoon at Hendon. Although I have seen these men give exhibitions of far greater skill, and far more dangerous to themselves, than that of M. Salmet, I have never yet seen a flight which so needlessly endangered the lives and limbs of scores of people.

"The danger of his flight lay not so much in his steeply-banked turns (although a sideslip in one of them would have caused a nasty smash among the crowd), as in the short *vols planés* which he persistently made, dropping from a height of some 80 or 100 ft. to some 10 ft. over the heads of the people, who were scattered pretty thickly all over the ground, except for a small space which had been cleared for his landing. I need hardly remark that if his motor had failed to pick up on the instant he would at once have been right among the crowd. Of course, they did not understand the danger—probably 98 per cent. of the 20,000 or 30,000 people present had never seen an aeroplane at all close before—but I have seen enough of the Gnôme engine to realise that it is not quite infallible.

"Subsequently the 'intrepid airman' made his usual rather fatuous speech about the Hospital Sunday Fund collecting-boxes, thereby doubtless impressing the people with his and the *Daily Mail's* disinterested motives in giving the demonstration."

The Dublin-Belfast Race.

The following is a list of the competitors already entered for the race from Dublin to Belfast and back on September 7:—

Henry Jullerot (French)—Bristol monoplane.
Henry J. D. Astley (British)—Blériot monoplane.
William H. Ewen (Scottish)—Caudron monoplane.
E. Obre (French)—Caudron monoplane.
Robert B. Slack (British)—Blériot monoplane.
"Marc Rivoli" (Irish)—Vickers monoplane.
Desmond Arthur (Irish)—Bristol monoplane.
Sydney V. Sippe (British)—Hanriot monoplane.
H. R. Simms (British)—Avro biplane.
D. Corbett Wilson (Irish)—Blériot monoplane.
Lieut. J. C. Porte, R.N. (Irish)—Deperdussin monoplane.
H. Busteed (Australian)—Bristol monoplane.
G. Hamel (British)—Blériot monoplane.
E. Petre (British)—Handley-Page monoplane.

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The Military Aeroplane Competition—*Continued.*

During last week, what with weather and one thing and another, very little progress was made with the competition, and even the sympathetic Judges' Committee were beginning to feel distinctly "fed up and far from home." Still, such is their intense keenness on giving British constructors a more than fair chance that they refrained from exercising their power to disqualify those competitors who had not done their tests. Even the constructors themselves are beginning to wonder at the long-sufferingness of the judges, and I rather think that after all it will make for good, as a genuine spirit of gratitude is growing in the trade, because undoubtedly the makers have received much more consideration than they deserved, and know it.

Monday, August 19th.

Monday was practically a dead day so far as results were concerned. It rained pretty well all day, and about the only flight was a short test by Lieut. Parke, R.N., on the enclosed Avro biplane. The machine lifted quite well, but when it came down it was found that the rain had frayed the cutting edge of the propeller to such an extent that it would have been dangerous to have kept it going for any length of time. Those who have driven an open car without a wind shield in rain at anything over 20 miles an hour know how raindrops cut, and when one remembers that a propeller tip may be doing anything from 250 to 400 miles an hour, one gets some idea of the power expended in chopping through raindrops.

The chief topic of conversation during the day seemed to be whether it was better to have boots that kept the rain out till it finally got in over the tops, or to have boots with holes in them that let the rain out as fast as it ran in. If anybody had had the business inspiration to go into Salisbury and come back with a car-load of gum boots he might have made a small fortune on the spot.

Tuesday, August 20th.

A hopeless day of wet and wind combined, the only competitor out in the early afternoon being the Avro "limousine," in which Lieut. Parke still seemed quite happy despite the rain. He went out cheerfully about 3.30 p.m., and stayed up for a quarter of an hour to test his engine, and when he came down the edge of his propeller again presented the aspect of master's pet razor when the mistress of the house has done sharpening pencils with it. However, his sole comment was, "Wait till you see a hydroaeroplane propeller on it." Apparently, but for the prospects of the propeller disintegrating he would as soon have gone for his three hours' test in the rain as any other time.

About 4.45 the rain stopped, and Védrines took the British Gnôme-Deperdussin out intending to go for the climb and the three hours. Mr. Edward Petre also took the big Handley-Page out for its first trials. The machine lifted quite nicely, and showed itself to be as stable as the old one on which he took his certificate, though I doubt whether with its present surface it would lift the 4½ hours' load.

Several other machines were out testing, and as usual the Army machines were out in force, till at 5.30 a fresh deluge came on, and lasted till 6.15, the rain sounding on the iron roofs like a pneumatic rivetter at work. Then it stopped, but by then it was too late for anyone to go for competition flights, so things gently petered out.

Wednesday, August 21st.

Wednesday was about as unprofitable as Tuesday. Several machines started for their three hours' tests in the early morning, but even as early as that the wind was decidedly bumpy, and no one finished. Mr. Massac Buist, of the *Morning Post,* who has done the competition throughout with extraordinary lucidity and accuracy, and with some priceless flashes of humour, told me that one of the students of the wind-gauge said that the thing gave him hiccoughs to watch—a very graphic description of the chart. Despite the weather, Mr. Pixton took out the No. 15 Bristol for its speed tests, doing 72.9 m.p.h. as his average high speed and 58.1 as his average low speed, a big "split" for a fast monoplane, though the slow speed must have been getting very near the edge of safety. He also gave a pretty exhibition of "taxi-driving" on the ground, and did a pulling-up test.

About 4 p.m. the Handley Page came out and flew well, showing the same long slow regular roll from side to side which seems to be characteristic of automatic stability machines, for the Etrich and Dunne both have the same trick, which looks alarming but apparently is part of the game. The same thing holds good of ships, for the average sailor prefers a ship which rolls steadily and comes back at the same pace, to a "stiff" one which keeps a level keel up to a certain point and then goes over with a jerk and stays there.

On landing Mr. Petre began to "taxi" back to his shed, when, in turning, a wheel and the skid caught in the ground and the machine tried to stand on her head, but settled quietly back without damage.

Soon afterwards Mr. Cody went for his road transport test with great *éclat,* managing to combine business and humour in his own inimitable fashion. The outer wing sections, or *cellules* as the French call them, were taken off, and the centre portion, consisting of the chassis, tail, and elevators, was hitched to a car, each *cellule* being put on a hand-cart hauled by two men. Then the three detachments were formed up in column and started on the march, Mr. Cody on one side and an assistant on the other, each holding a rope tied to the top of the central section to prevent it from rolling, much as an assistant bannerman in a procession holds the guy rope of a flag. A bystander with tender recollections of the South African war was much moved at the sight, saying that it reminded him of a certain famous "flying column" which was



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What Makes "The Perfect Airman"?

In a recent issue of *The Daily Mail* appeared a most interesting article by H. Hamilton Fyfe on "Henri Salmet, the Perfect Airman." Mr. Fyfe avers that the perfect airman

> **"should know his engine as a lover knows his lady's face. The constructing of engines should be as A.B.C. to him."**

Later the writer tells us that he never came across any who possessed the characteristics of a perfect airman in a greater degree than Henri Salmet.
At the end of the article there is this significant note:—When Henri Salmet's mind was made up regarding aviation he said to himself:

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known locally as "Settle's Imperial Circus," when it took part in the process of sweeping the Transvaal. Anyhow, Cody's flying column moved quite as quickly as any army on the march is likely to move, though it must be confessed that the dash and *élan* of the hand-cart crews had somewhat abated when they climbed back up the slippery hill from the road. Still, in practice, an ordinary army mule-cart would make light work of what must have been something of a penitential procession for them. And, kindly note, the official time from the start of dissembling to the start of the column on the march was 23 minutes—a highly creditable performance.

Inter alia, the pretty little Pigott biplane, known as the "Antipon Piggott," in recognition of its slimness of fuselage as compared with its progenitor the "Portly Piggott" of the last Olympia Show, made its *début en taxi,* but unfortunately met an impediment protruding from the surface of the Plain, so that it bumped a wing-tip on the ground, with unfortunate results to the right plane.

Later on the wind dropped and the tandem Blériot came out for sport, accompanied by numerous army machines, but no competition work was done.

Thursday, August 22nd.

On Thursday quite a good deal of work was done, without much progress being made. Several competitors again started for their three hours' test, and were again stopped by engine trouble. Mr. Pixton on No. 15 did his landing in the plough, and some minor evolutions, and Mr. Busteed on No. 14 did a wonderful glide, getting his monoplane to do 1 in 6.5 as his best angle, and 1 in 6.25 as the average, from 1,000 ft., which beat everything so far except the best Hanriot and the Maurice Farman. He told me he could beat that if allowed a second shot, as he kept the machine at her full flying speed all the way, and believed he would do a lot better if he came down flatter, but it was a fine first attempt. Incidentally it is a feather in the cap of M. Coanda, who set out to design these machines, so that if the pilot switches off and leaves them alone they will go right on at their natural gliding angle and at a speed which gives full control. I have long believed that M. Coanda's genius would do something good if it could find a proper outlet, and Captain Dickson showed remarkable perspicuity in discovering him and inducing him to join the Bristol Company. Of course, these machines are practically his first genuine effort, but they are decidedly promising.

During the morning it was officially announced that Mr. Gordon Bell would take over the British Deperdussin *vice* Védrines, gone to America for the Gordon-Bennett race. Also the Flanders biplane, having made a promising straight flight, came down with a tied-up cam-shaft, was packed up and sent off at once to Brooklands.

About 10 a.m. Lieut. Parke, R.N., set off on the Avro for his three hours' test, and did a weird performance in his climb. He started well, but apparently ran into a down current over Fargo, for he was lower coming back than at starting, and his first 1,000 ft. took him about ten minutes, then he went off towards Upavon, and presumably struck an aerial geyser, for his barograph showed a rise from 1,000 ft. to 2,000 ft. in 2¼ minutes. Thence he climbed steadily to 5,000 ft., remaining up for 2 hrs. 9 min., when the Green engine ran out a big-end bearing, owing to a bit of grit choking the oil channel and letting it get red-hot. During the two hours he used only 8 gallons of petrol, low consumption for 70 h.p., and this when flying in a wind which was officially shown as varying from 33 to 16 miles an hour. His passenger, Captain Salmond, was making his first trip in an aeroplane, and seemed to enjoy himself, except possibly when Lieut. Parke switched off the knocking engine at 1,500 ft., and quietly told him to hang onto something because there might be a bump on landing—though there was not, the landing being quite good in spite of the wind.

Soon afterwards the Handley Page came out for a preliminary test, intending to go for the three hours, but in landing with the wind behind nearly ran into the chains round the Bristol sheds, swerved to the right, swerved again to avoid some bystanders, and just then was caught by a 30-mile-an-hour gust, which tipped him over onto a wing, smashing the wing and several chassis struts, thus putting the machine hopelessly out of the competition. However, the firm is quite philosophical about it, and feel rather pleased they should have even got the machine so far built in the time as to fly at all in the trials. Their sole remaining ambition is to get it repaired in time to fly home instead of taking it by road. They have every confidence that before long the type will have established its claim to success and so will get its share of orders.

In the afternoon Mr. Busteed and his crew distinguished themselves still more by doing their road transport test in record time. Nine minutes to take the machine to pieces and hitch it to a car, and eight and a half minutes to put it together again and get it into the air, the whole test taking 40 minutes, including the trip along the road at about 20 miles an hour.

The Aircraft Company's crew did a smart bit of transport work, considering that the Maurice Farman is specially built to stay together till absolute need for repair obliges dissembling. They took the tail and elevator booms off, folded them neatly along the main *cellule,* took the wheels off, fixed them on a special axle under the main skids, and parallel to them, and then towed the whole thing, neat and solid, behind a car. They put it all together again, and had it in the air three hours and six minutes from the start.

A very fine cross-country flight was made during the day by Mr. Sabelli, who arrived at Lark Hill on the little 50-h.p. Hanriot which Mr. Sippe flew in the "Circuit of London," and which he himself turned over in a cornfield a month or so later. So strong was the wind that although the machine does its 65 miles an hour or so he took an hour and a half to do the 60 miles or so from Brooklands. I have always had a high opinion of Sabelli's ability as a flier, and am glad to see he is at last getting a chance to show his worth. Mr. de Havilland on the famous *B E 2* and M. Verrier on the evergreen Maurice Farman were both doing very pretty flying during the afternoon, vieing with each other in their fancy turns and twists. The *B E 2* is certainly the racier-looking machine,



Mr. Gordon England coming down from the final test flight on the 100-h.p. Bristol biplane, which was thereupon withdrawn.

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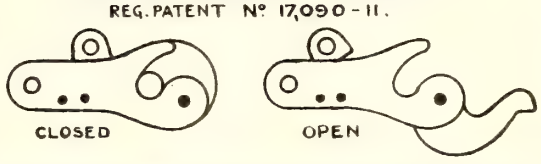
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and is faster, but there is not much between the two in sheer capability as flying machines.

M. Chéreau and M. Perreyon also did a supplementary test with the tandem Blériot to show how neatly it could be handled with the special lorry M. Blériot has designed for it. The arrangement is very smart, and it can either be used as a horsed lorry, or the two front wheels can be discarded and the rest used behind a car.

About 6 p.m. M. Perreyon, who has established himself as one of the best fliers and hardest workers in the competition, took the side-by-side Blériot over for its landing test, doing a beautifully-judged "pancake" into the soft ground, though he had some difficulty in getting out afterwards, the lie of the ground being uphill.

Soon afterwards Mr. Sippe, accompanied by Colonel Everett, an Australian officer attached to the British Army, who has done a lot of hard work for the Judges' Committee right through the competition, came over to the plough, but chose to land in the softest portion, with the result that the skids dug in and the machine stood on its head, resting gracefully poised on the propeller boss without damaging the propeller in the least. Colonel Everett, rigid disciplinarian that he is, remained in the passenger seat head downwards till orders were given by the skipper that the crew might desert the ship. An excellent example to the young British soldier, but scarcely treatment we should mete out to a distinguished Antipodean guest. The total damage done was a pair of broken skid-tips.

The next victim was the irrepressible Busteed, with Captain Dawes as passenger. The landing was quite pretty, but the machine was slow getting out again, and did not seem like clearing the hill in front, so Busteed let her come down in a field full of corn in stooks, thinking to knock the stooks over with the stretcher-bar of the skids and run over them. What he did not foresee was that the sheaves would burst open and get mixed with the propeller. Consequently he hit the first one full tilt with the engine running, and in a second the air was full of flying corn. Then he switched off, and as the engine slowed down they hit two other stooks, which supplied more fodder to this novel threshing machine. Propeller, engine, chassis, wings, pilot, and passenger were smothered in straw, and the sight of a distinguished officer of the Royal Flying Corps sitting in an aeroplane picking straws off his head like a kind of military Ophelia, is one not lightly to be forgotten. And the net damage was a bent stretcher-bar.



M. Perreyon, the only pilot to put two machines through all their tests.



Mr. Harry Busteed, Australia's crack flier, who is doing fine work in the trials.

After these two performances nothing else could be really entertaining, so interest waned and people went home.

Friday, August 23rd.

Friday brought two notable performances. One was the appearance and use of the landing brake evolved by Mr. Cody, and the other Mr. Pixton's record battle with the wind. Mr. Cody went out before breakfast for the quick stop test, and had fitted three loops of chain round his "Kangaroo-tail" skid, so arranged that these were held up out of action by a rope till wanted. In principle they are much like Parsons chains, but act against lengthwise slip instead of sideways. The scheme is good, and a success, for it is no light matter to pull up a 70-mile-an-hour machine in 56 yards, as this did.

Pixton's performance was very fine, for his was the only machine out in the forenoon, and while he was up the wind varied from 17 to 44 miles an hour, the gusts being strong enough at times to wrench the controls out of his hands, so M. Coanda's design for self-warping wings evidently works out in practice. Captain Hamilton, who was with Pixton as passenger and observer, though a fine flier himself, must have splendid nerve, for he seemed thoroughly to have enjoyed his experience.

To-day the judges, worn out with early mornings and late evenings on which nothing was done, issued instructions that competitors could take the tests in any order they liked, instead of necessarily commencing with the climb and the three hours. It is only a pity they did not allow this before, for several more machines would probably have done all their minor tests and would merely have had the three hours' to do. However, three fine days during this week ought to clear up all the machines which are worth considering.

The whole of Friday afternoon it poured, and the alleged

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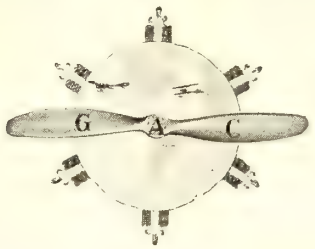
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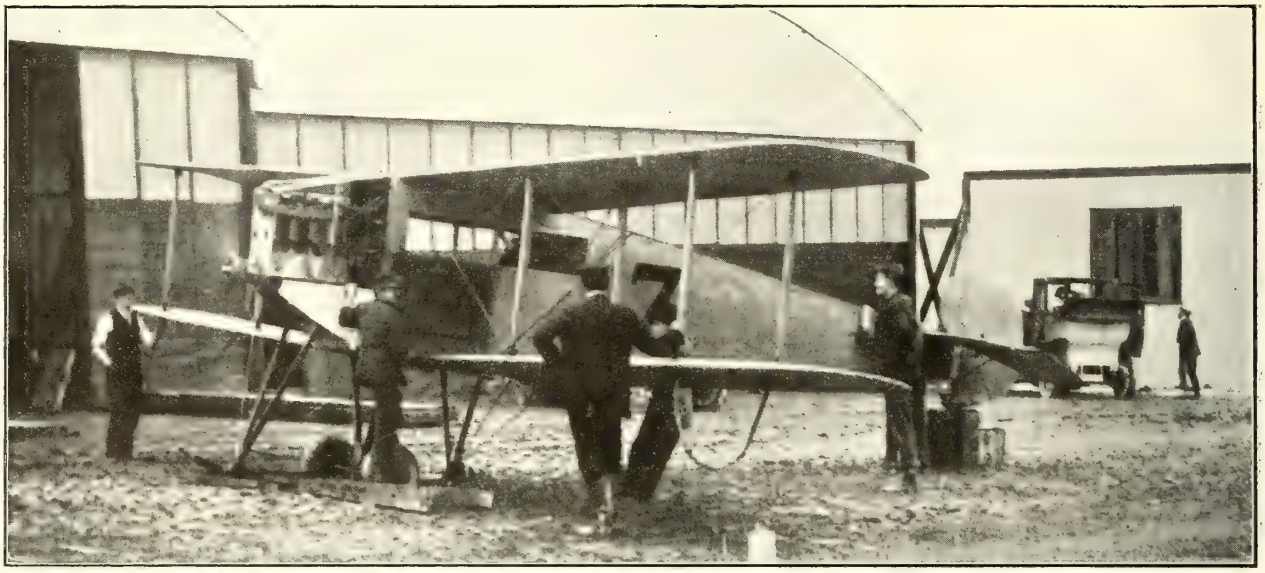
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The Avro "Limousine" being tuned up. This, with its Green engine, is the only all-British machine in competition.

road between the sheds became a quagmire, in which officers and aviators, mechanics and constructors paddled like ducks in a farmyard. The only note of humour was that of an officer who besought the judges to put up a notice that competitors would be allowed to fit floats and submit their machines to hydro-aeroplane tests on the Plain. Only a stern sense of duty could have prevented the appearance of so apposite a notice.

Incidentally the Chenu engine seems to have given a new word to aviation, for at Lark Hill the verb "to chenu" (generally pronounced "shnoo") has taken a firm hold, and indicates the action of automatic disintegration. For instance, a pilot on a machine with another engine was forced to come down owing to engine trouble, and announced casually, "I think one of the inlet valve springs has shnooed itself." Mr. Martin, of the Martin-Handasyde, created a new record to-day by stopping his Chenu engine twice of his own volition. The engine in the Coventry, on the other hand, had the further ill-luck to shnoo the lugs which hold down the case of the two-to-one gearing for the propeller, and so, as is its custom, stopped itself.

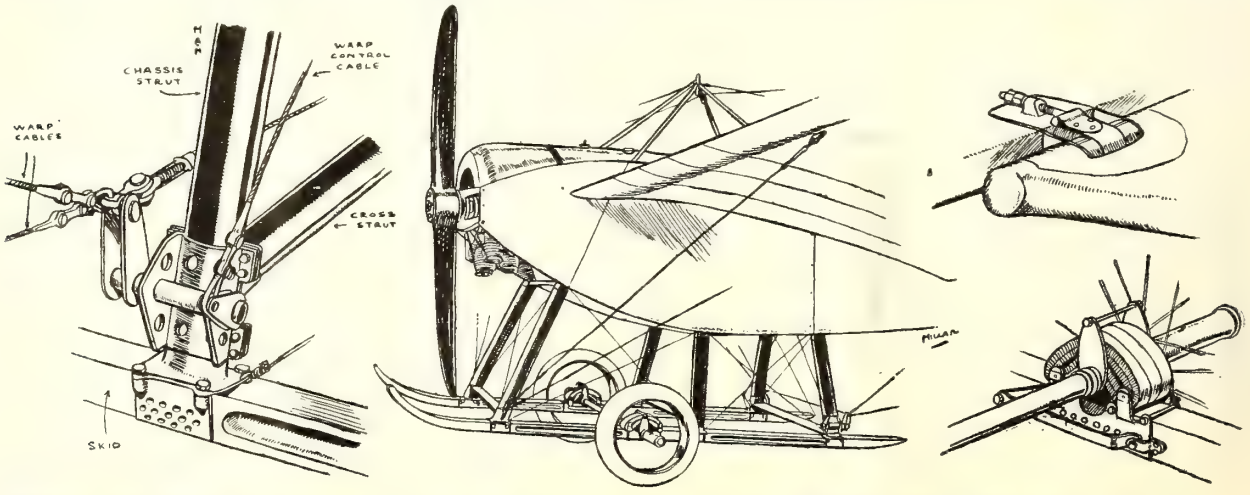
Saturday, August 24th.

It rained all Friday night and all Saturday morning, and we who intended to do the usual early morning trip to Lark Hill from the George Hotel at Amesbury—most comfortable of country hotels—were solemnly called at 4 a.m. by William, the boots, so that he could tell us each separately and severally that "It's raining like anything and the other gentlemen aren't getting up." Good and faithful servant is William. Then during the forenoon it grew warmer and brighter, though still pouring, but the more faint-hearted went off for the week-end. We who remained were rewarded, for during lunch the wind shifted from south-east to north-west, and we had the most perfect afternoon for flying we have had for months.

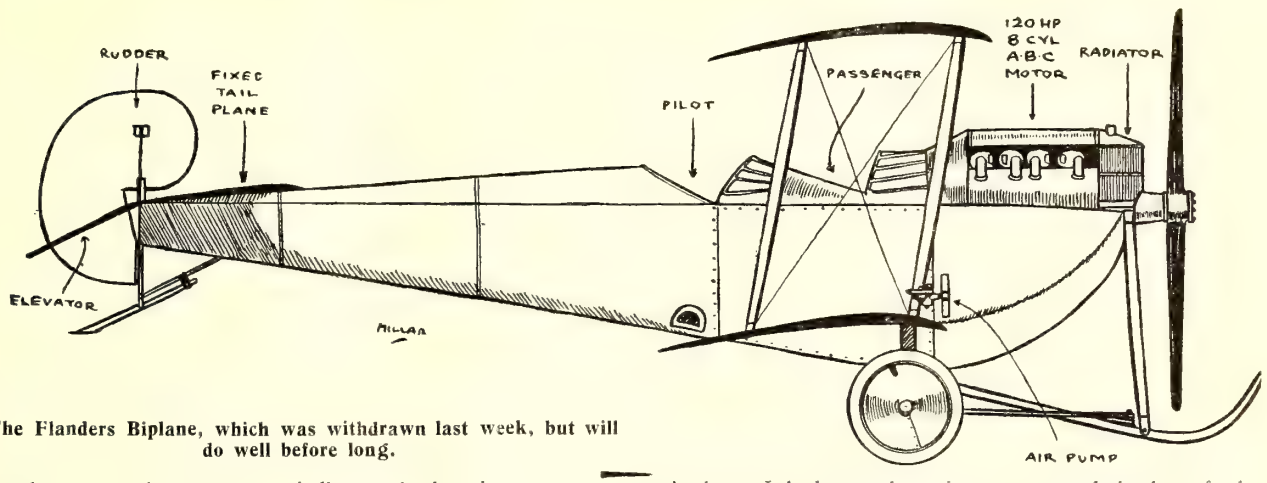
As usual, the first man out was Mr. de Havilland on *B E 2*, quickly followed by Lieut. Fox on the old Army Deperdussin, who soon after handed over to Lieut. Burchardt Ashton, who made his first essay as a monoplanist, flying quite well, and coming down very well pleased at the change from flying box-kites.

Then Lieut. Porte, R.N., went off for speed tests on the British Anzani-Deperdussin, but had the hardest luck in being hung up the whole afternoon with engine trouble. Mr. Gordon Bell, making his first trip on the British 100-h.p. Gnôme-Deperdussin, went over to the Central Flying School to do his flying tests for the Royal Flying Corps, as, of course, officially the authorities did not know whether Mr. G. Bell, 2nd Lieut. Special Reserve (on probation), was able to fly or not. Having succeeded in convincing them, he came back too late to go for his three hours' test, so he did some very pretty flying for a while, and afterwards went up on Mr. Sabelli's little 50-h.p. Hanriot, which he flew equally well.

Lieut. Parke brought out the Avro, intending to go for his three hours, but the newly-assembled Green was not quite right, so there was further delay for adjustments, after which he went over for his speed tests, but by then a nasty puffy 20-mile wind had got up, so he came back. Later on he went out and did a very fast trial climb to 1,500 or 2,000 ft., and afterwards



Details of the Hanriot monoplane, one of the likely prize-winners. In centre—general chassis arrangement. On left—fixing of warp gear. On right—above, method of attaching empennage, and, below, fixing of radius rods to wheels.



The Flanders Biplane, which was withdrawn last week, but will do well before long.

took up several passengers, winding up by bursting a tyre on landing.

Early in the afternoon Mr. Pixton, with Lieut. Ashton as passenger, started out for his gliding test, but came back saying he found it "bumpy"—this from our champion wind fighter—and when he went out later someone forgot to turn on the oil to the engine, so he had to come down from 500 ft or so.

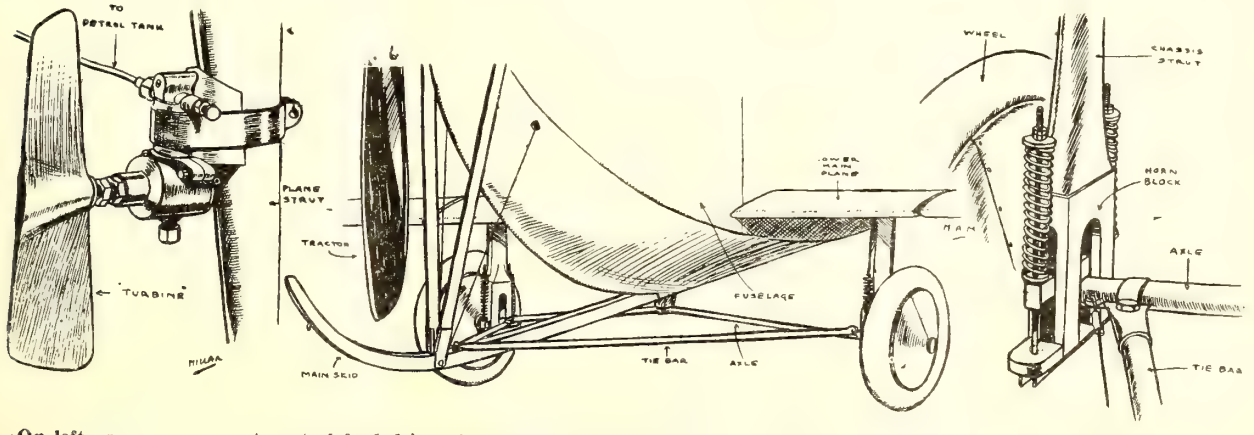
Mr. Cody and M. Verrier, having passed all their tests, were naturally flying the whole afternoon, the 120-h.p. engine of the Cody making day hideous and giving one the impression that an artillery duel was in progress, as the sound came first from one direction and then from another. While I was walking peacefully across the Plain bent on getting a photograph of Cody I was startled by the rattle of a Renault exhaust, and looked up to see Verrier charging at me on the big Farman. About fifty yards away he swerved off suddenly, with a cheery wave of the hand, and thereafter proceeded to fly at and round me, till I began to think he was a sort of nightmare fly buzzing round my head—so of course he had to be photographed too, as the only way of driving him off. When I got back to the sheds, having successfully snapshotted Cody, Verrier and Clement Greswell insisted that I should go up on the Farman, so I overcame my inherent fear of rapid locomotion—one can fancy one knows too much to be happy even in a taxi—and went. It was really too fine a day to stop on the ground.

Verrier was charming. He did all his pretty little turns, and switchbacks, and even added very artistically a new touch by throttling down in the middle of a little banked dive over a clump of trees, so that the engine started missing. He pumped frantically at the handpump by way of pretending that the pressure-feed of the petrol tank had gone wrong. Then he opened the throttle, and up we went again. But he did not treat me to one of his long pancake glides over the sheds. Perhaps he thought I might photograph the sheds from above, instead of from the front, and use it in evidence against him. The pancake then remains for another day, *pace* Mr. Holt Thomas.

Anyhow, I had enough to increase my admiration of the Maurice Farman immensely, great as it has always been. I believe that machine flies itself; certainly Verrier seems to do very little work in fine weather, and I can quite see now how he can take up dozens of passengers in a day without being tired. I do not say the machine is the last word in all aeroplane design, but it is certainly the last word in its own type; and in workmanship and detail there is nothing better. If I were a millionaire who could keep a stud of aeroplanes for my own use I should have a Maurice Farman, as surely as I should have a Rolls-Royce among my cars. One of the judges had been up in the machine just before my trip, and I believe he likes it as well as I do, which is saying a good deal, though he would, of course, value it from the military point of view for facility of observation, as well as for its unusual efficiency and simplicity as a flying machine.

During the evening M. Bielovucic was flying for a long time on the No. 1 Hanriot, and Mr. Busteed was out on No. 14 in excellent style. The British Bréguet did a couple of circuits, starting well, but fading away with engine trouble at the finish. Mr. Raynham took out the Gnôme-Coventry, which shed sundry inlet springs and then caught fire, causing a good deal of excitement. Fortunately the fire was only from petrol dripping from the jet, and owing to the design it was confined to the engine casing, but it showed the danger of machines with the carburettor inside the fuselage, as some have them.

Mr. Macdonald was out on the little Vickers. M. Perreyon was flying the No. 5 side-by-side Blériot in good style. Mr. Gordon England took up the 100-h.p. Bristol tractor biplane with full load, but she steadily refused to climb, so she was brought back and withdrawn from the competition. Very hard luck on England, for she is of a design over a year old, and though a good machine in her way cannot possibly represent what he would have designed for this competition if he had had time to build another machine to the ideas he has acquired in the last twelve months. However, she will make an excellent school machine, so she need not be wasted.



On left—pressure pump to petrol feed driven by propeller slip. Centre and right—chassis details of the Flanders.

There was the usual flock of army machines out, all going strong, the only trouble being a landing by Captain Allen, who, after flying capitally on a Bristol monoplane for a long time, landed with a side drift on and buckled a wheel, which threw the machine on to the point of the skid, breaking it and the propeller.

Major Carden was out on the old Dunne biplane, surely the quaintest-looking thing that ever flew, though it really does fly, apparently, quite well. Getting on towards dusk, I met two of the judges looking thoroughly tired out, and foolishly remarked what a fine afternoon's flying there had been. The reply I got was that the net result of five and a half hours' flying was that the No. 5 Blériot had passed its road transport test. Which, after all, was the only real achievement of the day so far as the competition was concerned. And that was the real reason for all of us being there. It certainly is more than somewhat disgusting.

Sunday, August 25th.

I learn that, contrary to original intentions, the judges sacrificed their own Sunday's rest to give competitors a further chance of getting through their three hours' tests. Only two did so, however, these being Mr. Bell on the British Gnôme-Deperdussin, and Lieut. Parke, R.N., on the Green-Avro. Both finished the three hours, and Mr. Parke apparently nearly finished himself and his passenger as well, for in coming down he tried to do a sharp turn rather low down in front of the sheds, with the result that the machine side-slipped slightly and then did an almost vertical dive. By sheer luck the machine was just at a height which allowed the pilot to pick her up five or six feet off the ground, so he flew another circuit and landed quietly. The Avro had already done its height test and its fast speed test, but not its climbing test; still, it should get through the rest quite easily in the next few days if there are some fine intervals.

On Sunday afternoon, by way of a change, Mr. Parke flew over to the Central School, taking Mr. H. V. Roe with him as passenger. Mr. Roe had fixed a small typewriter in the cabin, and typed a report of their flight as he went along. The idea has merits, for handwriting is apt to get shaky with engine vibration, if nothing else. The next thing will be to fit the famous office Chesterfield in the "limousine" as well.

During the day Mr. Cody, who had taken General Henderson up the previous evening, took Major Sykes for a climbing test, just to show what the machine could do, for he had already done his 1,000 feet in 3½ minutes, which passed the official test. This time they reached the 1,000 feet in a steady climb in 3 minutes, the engine running full power, but not being forced up. Major Sykes afterwards controlled the machine from the passenger seat for several minutes, and I gather that both he and General Henderson expressed a desire to learn to fly the Cody machine themselves, a well-deserved compliment to the maker, designer, and pilot.

I also hear that several machines have been definitely declared out of the competition, including the pretty little Piggott. I hope this will not prevent the makers of this machine from going on experimenting with it, for, with certain alterations, it ought to make quite a nice one-man run-about, and should meet the need for a light cheap machine for fine-weather flying. Obviously it is too small to carry a passenger and fuel for several hours, but it has distinct possibilities in other directions. Some of the other machines which have been put out of the competition will be heard of again before long, for their makers have learned a good deal from the other competitors, so their time and money has not been wasted after all.

Stray Jottings.

One of the quaint happenings recently was when Mr. Mervyn O'Gorman, admiring the transparent cowls over the seats in the Flanders machine, suggested they might catch fire. Mr. Flanders explained they were made of Cellon, and could not burn. Anxious to show the incombustibility of the popular "dope," he fetched a roll from the spares box, put a match to it, and the whole lot went to heaven in a pillar of flame. Natural assumption was that a consignment of Cellon had gone wrong in the making, and Mr. A. J. A. W. Barr, of the Cellon Co., was considerably ragged about it when he appeared. However, knowing that his stuff could not burn if it tried, he started, *à la* Sherlock Holmes, to investigate, and by carefully tracing back to the Flanders' works at Richmond and their shed at Brooklands, he found that some ordinary celluloid had been ordered some months ago, and that someone at Brooklands had put it among the stuff going down to the Plain, on the chance that it "might come in useful." Far from it, for it nearly burnt up a judge and a constructor, and only just missed destroying Mr. Barr's reputation.—C. G. G.

POSITIONS OF MACHINES REMAINING IN THE MILITARY TESTS UP TO SUNDAY, AUGUST 25TH.

No.	Machine.	Pilot.	Time Assembling.	Crew.	Date of Firs Flight.	Passed 3-hrs.' Flying Test.	Passed Climbing Test.	Time for First 1,000 ft.	Passed Speed Test.	Speed in m.p.hr. max.	Speed in m.p.hr. min.	Wind Speed in m.p.hr. during High Wind Test. max.	Wind Speed in m.p.hr. during High Wind Test. min.	Passed Test of Ploughed Field	Passed Gliding Test.	Gliding Angle. Mean.	Passed Road Transport.	Time dissembling and re-assembling.	Pulling up on grass.	Order of Finishing Tests.
1	Hanriot (m)	Bielovucic	14m. 43s.	5	Aug. 1st	Aug. 12th	Aug. 3rd	2m. 45s.	Aug. 14th	75.2	59.9	31½	21	Aug. 16th	Aug. 13th	1 in 6.6	Aug. 17th	30m.	yds. 120	3rd
2	Hanriot (m)	Sippe	22m. 58s.	5	1st	3rd	—	3m.	12th	75 4	66 6	31	25	—	9th	5.9	—	—	119	—
3	Vickers (m)	Macdonald	53m. 30s.	6	1st	—	—	—	—	—	—	29	14	—	—	—	—	—	—	—
4	Blériot (m) (tandem)	Perreyon	59m. 57s.	4	1st	2nd	3rd	4m.	9th	61.1	52	29	25	12th	9th	5.6	13th	37m.	60	2nd
5	Blériot (m) (side-by-side)	Perreyon	1hr. 27m.	4	1st	3rd	3rd	4m. 15s.	13th	58.9	40	30	26	22nd	14th	5.3	24th	1h. 18m.	45	6th
6	Avro (bi)	Lieut. Parke, R.N.	1hr. 14m. 30s.	6	1st	25th	—	—	—	59.9	—	33	16	—	—	—	—	—	—	—
10	Coventry (bi)	Raynham	1hr. 51m.	5	1st	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
14	Bristol (m)	Busteed	17m. 52s.	5	1st	12th	10th	5m.	—	70.5	68.3	31	15	22nd	22nd	6.5	22nd	17½m.	65	—
15	Bristol (m)	Pixton	23m. 35s.	4	1st	14th	—	—	—	72.9	58.1	44	17	—	—	—	—	—	110	—
17	Martin-Handasyde (m)	Gordon Bell	1hr. 33s.	6	6th	—	—	4m. 45s.	—	66.5	—	34	16	—	—	—	12th	—	—	—
20	British Deperdussin (m)	Gordon Bell	2hrs. 55s.	5	3rd	25th	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21	British Deperdussin (m)	Lieut. Porte, R.N.	7hrs. 15m.	5	2nd	3rd	7th	4m. 50s.	9th	55.2	37.4	29	14	12th	9th	5.8	22nd	3h. 6m.	64	5th
22	Maurice Farman (bi)	Verrier	2hrs. 29m.	5	1st	5rd	3rd	—	8th	69.1	59.1	29½	13	9th	9th	5.4	10th	1h. 43m.	73	1st
26	French Deperdussin (m)	Prévost	1hr. 56m.	4	1st	3rd	3rd	3m. 30s.	12th	72.4	48.5	27	14	12th	12th	6.2	21st	5 1m.	56	4th
31	Cody (bi)	Cody	1hr. 35m.	6	1st	3rd	3rd	3m.	12th	—	—	—	—	—	—	—	—	—	—	—

The Hydro-aeroplane Meeting at St. Malo.

Unusual interest attached to the hydro-aeroplane meeting at St. Malo, because of the new types of machines which had been entered for it. As expected some of these machines did not fly, and some of them did not even put in an appearance, but the information published about them by our enterprising contemporary, *L'Aéro*, of Paris, is worthy of reproduction as showing the direction in which various famous constructors are working.

The opening of the meeting was ruined by bad weather, like everything everywhere for the past month, and numerous accidents marked the progress of the competition.

When the meeting opened on Saturday four out of the nine machines met with trouble, but none of the competitors was injured. On Sunday, however, when Mesguich, the Paulhan-Curtiss pilot, was following the Rotheneuf road towards Paramé, he fell and broke his leg, and was picked up unconscious. His machine dived among some rocks. On the Saturday, Mesguich had almost reached the Grand Jardin light when his machine came down in the sea The pilot got into the harbour of St. Malo without assistance, but the propeller snapped just as he reached port, the Curtiss being a bad sea-boat, as has been found over here by Mr. Travers and Mr. Grahame-White.

M. Guillaume Busson, who did well on Saturday in the Deperdussin, came to grief on Sunday. He had just got up speed when the machine capsized, and he disappeared beneath the water. However, he reappeared and clung to the floats until a motor-boat rescued him.

M. Chambenois, while making a trial on the Borel on Sunday, came down so violently in the Bas Sablons that he wrecked his machine. M. Frank Barra, piloting a Paulhan-Curtiss, met disaster at the same place on Saturday.

M. Weymann, the Haitian, after rounding the Grand Jardin light on Saturday in the Nieuport, with two passengers—the Comte de Montjon and a mechanic—struck the water with one of the wings and turned over. Weymann and his companions were saved by a torpedo-boat, but the machine sank.

Nine machines competed in the first test on Saturday, and six completed the course.

The following are the official results of the first trial :—

Labouret, 11 mins. 10 secs., two passengers ...	1
Busson, 13 mins. 3 secs., one passenger	2
Molla, 13 mins. 37 secs., no passengers	3
Renaux, 15 mins. 11 secs., two passengers... ...	4
Benoist, 15 mins. 46 secs., one passenger	5

Weymann, Mesguich, and Rugère did not finish, but were qualified to take part in the remainder of the trials. Train, Chambenois, Beaumont, and Barra were disqualified or otherwise put out of action.

In the second trial the results were :—

Benoist, 9 mins. 14 secs., with three passengers ...	1
Labouret, 10 mins. 45 secs.	2
Molla, 12 mins. 29 secs.	3
Weymann, 14 mins. 8 secs.	4

Of the five competitors in the race to Jersey and back, Renaux returned soon after the start, but the other four arrived at Jersey in the same order as they left. Labouret and Weymann got away some time before Benoist and Molla on the return flight, the two latter losing time from inability to obtain petrol.

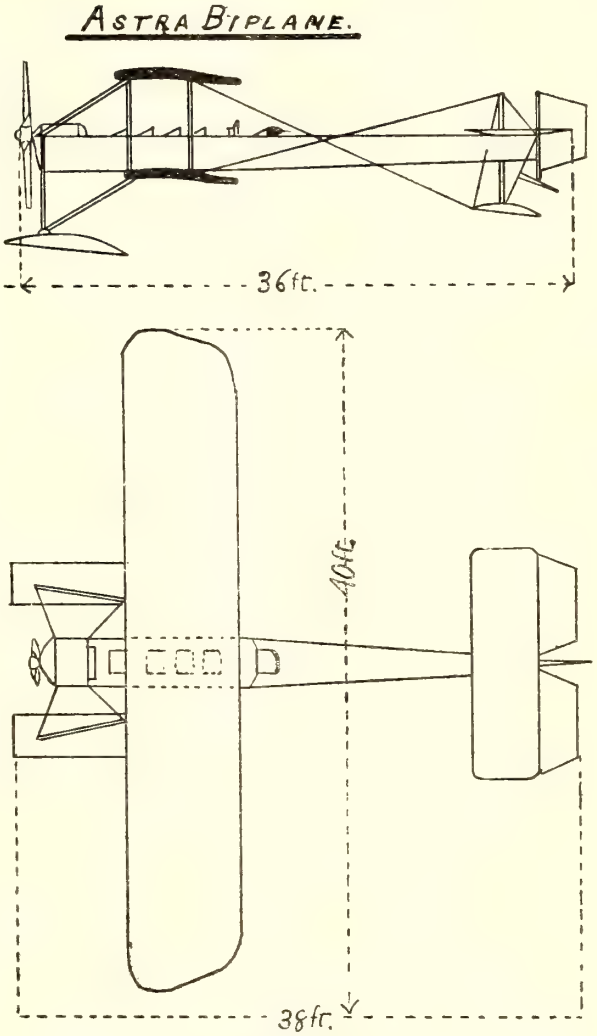
The big Astra biplane was the first seen, flying high. A moment later Weymann, on the Nieuport, appeared, flying much lower and faster, and a good race home ended in favour of Weymann by a few seconds, which made a pretty finish for the crowd.

This terminated the meeting. One can fairly describe the results as satisfactory, showing that machines fitted with different types of floats can rise successfully from quite a considerable sea, and, equally well, return to the water.

The following is the official result of the *Classement Générale* :

Machine.	Pilot.	Points.	Races Finished.	Amount Won.
1. Astra	Labouret ...	9	... 3	... 15,000fr.
2. Sanchez-Besa	Benoist ...	14	... 3	... 10,000fr.
3. R.E.P.	Molla	16	... 3	... 6,000fr.
4. Farman	Renaux ...	21	... 1	... 4,000fr.
5. Nieuport	Weymann .	25	... 1	... 2,000fr.
6. Paulhan	Mesguich ..	36	... none	... 666fr.

The special prize of 3,000 francs for the Jersey Race was won by Weymann.



The Astra Biplane, the chief prize-winner.

The Astra is a huge tractor biplane, with a non-lifting tail, and is intended to carry five people, for in the competitions the more passengers carried the more credit is given in the handicapping. The machine has three floats, two wide apart and well forward, and a third under the tail. These are long and narrow, and on the Tellier principle. The Astra firm, which is connected with M. le Baron Henri Deutsch (de la Meurthe), have, after long experimenting, produced a number of highly successful biplanes more or less of the Avro type, and this is their first attempt to produce a water-flier of the same type. The principle dimensions are :—

Span—40 ft. Length—36 ft.
Height—11 ft. Surface—500 sq. ft.
Tractor—9 ft. 9 in. diameter, with 100-h.p. Renault motor.
Main floats, Tellier type, 3 ft. 9 in. by 14 ft. 6 in.

The R.E.P. is to all intents the familiar all-steel monoplane from which the ordinary chassis has been removed to make way for a hydroplane float of the Fabre type placed centrally. There is a small float at the tail, and bottles under each wing-tip. The chief dimensions of the machine are as follows :—

Span—37 ft. 9 in. Length—24 ft. 6 in.
Height—9 ft. Surface—215 sq. ft.
Tractor screw—8 ft. diameter, 6 ft. 6 in. pitch, with 80-h.p. Gnôme.
Float—Single central Fabre type, 6 ft. 6 in. wide by 7 ft. 6 in. long.

The Sanchez-Bésa is simply a very large all-steel Voisin biplane, with catamaran floats.

The Week's Work.

MONDAY, August 19th.

R.F.C. (Farnborough).—Major Burke out early on *B E 1*, also Lt. Longcroft, both flying well.

R.F.C. (Lark Hill).—Capt. Hamilton out early on his own 60-h.p. Deperdussin flying for 30 mins. *B 3* (the Bréguet) out early piloted by Capt. Raleigh. Lieut. Mackworth on *B E 4*.

Hendon.—At Deperdussin School, Cadet Robinson several good straights on brevêt, machine landings good. Lieuts. Tucker and Bourke, Messrs. Andrews and Phelps all rolling on taxi No. 2. Mr. Gill two circuits on racer.

Brooklands.—At Vickers School, in morning, Capt. Stott and Mr. Geere much practice on *Vickers 2*, both showing considerable promise.

At Sopwith School, in morning, Mr. Perry out for quarter hour on school Farman, but weather not sufficiently good for pupils flying alone.

At Bristol School, Mr. Merriam testing, then instructing Major Ashmore in landing. Latter alone making figures of 8's. Captain Brabazon ditto. Mr. Merriam tuition to Capt. Boger. Mr. Cheesman, Mr. Pickles and Mr. Barnwell also flew. Mr. Merriam and Lieut. Bettington on monoplane.

Morpeth.—Mr. H. J. D. Astley on Blériot arrived from Berwick, forced down by bad weather.

Brighton-Shoreham.—M. Salmet on Blériot up in 25-mile wind. Did several circuits and then flew to Brighton, giving fine exhibition over sea between the piers.

Margate.—Mr. Louis Noel on Henry Farman hydro-aeroplane made fine flight in wind estimated between 30 to 40 m.p.h. Later in the day gave another exhibition along front between Margate and Cliftonville. Mr. Travers also flew same machine in excellent fashion.

Blackpool.—Mr. B. C. Hucks on Blériot flew from Lytham to Blackpool at 2,000 ft. Rounded Blackpool tower and returned *via* Bispham and Poulton. In evening made fine flight over sea front with usual Vandervell illuminations.

Birmingham.—Mr. Fischer made several good flights from Edgbaston Reservoir on Henry Farman.

TUESDAY, August 20th.

R.F.C. (Farnborough).—Major Burke several flights on *B E 1*, Mr. de Havilland on *B E 5* taking passengers. Lt. Longcroft flying well on *B E 1* several circuits.

R.F.C. (Lark Hill).—Lieut. Fox on *B E 2*, two flights in very strong wind, the machine flying well. Capt. Raleigh on *B 3*, also doing good flying. Later, same machine taken out by the crack flier M. Moineau, of Bréguet firm. His flying is wonderful on this machine. Mr. Pizey, of Bristol School, flew the 50-h.p. Bristol monoplane for a short time for testing purposes. Lieut. Mackworth on *B E 4* flying for 30 minutes, after which Capt. Beor on same machine.

Brooklands.—At Vickers School, in evening, Mr. Geere on *Vickers 2* flying straights in good style.

At Bristol School, Messrs. Merriam and Hotchkiss on biplanes. Mr. Merriam with Mr. Hall and Lieut. Payze. Mr. Hotchkiss with Capt. Miller and Capt. MacDonell. Messrs. Barnwell and Summerfield, Lieut. Playfair and Gould, and Mr. Cheesman alone. Mr. Merriam with Lieuts. Carmichael and Glanville. Mr. Hotchkiss with Lieut. Loultcheff and Lieut. Ali.

Southport.—Mr. Hucks on Blériot arrived *en route* for Warrington and gave exhibition flight before going on. Mr. Hamel also gave exhibition flights, and flew part of way to Warrington with Mr. Hucks. Mr. Astley on Mr. Hamel's machine flying equally well.

Warrington.—Mr. B. C. Hucks on Blériot flew from Lytham to Warrington *via* Southport and gave fine exhibition in evening.

Margate.—Excellent flights on Henry Farman hydro-aeroplane by Mr. J. L. Travers and Mr. Louis Noel.

Birmingham.—Several flights over Edgbaston Reservoir by M. Fischer on Henry Farman.

WEDNESDAY, August 21st.

R.F.C. (Central Flying School).—Lieut. Parke, R.N., visited school on Army Trial Avro biplane.

R.F.C. (Farnborough).—Early, Major Burke circuits on *B E 1*, then Lt. Longcroft for 1 hour's flight on same at 5,000 feet; then 2 more flights, one of 30 mins. and one of 15 mins. duration. Capt. Raleigh arrived from Salisbury on Bréguet *B 3*, flying at good height and making good time. Capt. Darbyshire and Capt. Webb-Bowen doing straights on *B E 5*. All out again in evening, flying until dark, Capt. Raleigh on 100-h.p. Bréguet, and Lt. Carfrae on Bréguet *B 3*, both making long flights, Capt. Reynolds, on Maurice Farman, when starting, had misfortune to break propeller.

R.F.C. (Lark Hill).—Capt. Hamilton out on 60-h.p. Deperdussin, flying well for 20 mins. Mr. Gordon Bell piloted the Martin-Handasyde for 35 mins., giving splendid show. Capt. Raleigh on *B 3* (Bréguet) for short time, after which he started for Farnborough. Lt. Mackworth on *B E 4* for short flight. Lt. Fox on *B E 2* made three flights, one with a passenger. Mr. Pizey on Bristol monoplane for a short time, taking up Lt. Lawrence as passenger. Capt. Hamilton out later on Deperdussin. Major Carden had the Dunne biplane out for a few minutes, but only testing engine after last accident. Lt. Mackworth on *B E 4* for 30 minutes.

Hendon.—At Grahame-White School, Mr. Blackburn out at 5.30 a.m. on Howard Wright with pupils. Mr. Lewis Turner out at 7 p.m., but still too much wind for pupils alone, so after taking up Mr. Fuller, Lieut. Allen, and Lieut. Small (new pupil), work finished for the day.

At W. H. Ewen School, Lieuts. McMullen and Bayly put in good practice in straights before the wind returned.

Brooklands.—At Vickers School, in evening, Capt. Stott on *Vickers 2* straights.

At Sopwtih School, in evening, Mr. Hedley flying school Farman for ¼ hour.

At Bristol School, 4.30 a.m., Mr. Merriam with Lieut. Carmichael, then rolling tuition to Turkish Lieuts. Ali, Fazil, and Abdullah, also Lieut. Glanville and Capt. MacDonell. Lieut. Arthur giving tuition to Capts. Boger and Miller. Mr. Hotchkiss on biplane. Wind too strong for more flying. 7 p.m., Mr. Hotchkiss out alone, wind very bumpy. Mr. Barnwell then went for his brevêt and flew first five 8's in good style, but weather stopped second lot. Mr. Pickles also out.

Margate.—Mr. Travers on Henry Farman hydro-aeroplane flew from Margate to Herne Bay with Mr. Bonar Law, junior, as passenger. Wind stated to be 45 m.p.h., but this seems doubtful, as machine would probably then be standing still.

Brighton-Shoreham.—M. Salmet started in evening to fly to Southampton, but owing to gale and rain made practically no progress and came down near Littlehampton, having taken 40 minutes to fly 10 miles.

Leeds.—Mr. B. C. Hucks on Blériot made two exhibition flights in high wind.

THURSDAY, August 22nd.

R.F.C. (Central Flying School).—Bad weather prevented School flying till to-day. In morning Capt. Fulton, R.F.A., out on *Avro 2*. Seven flights altogether, once each with Capt. Alston and Lieut. Risk, twice with Major Higgins and three times with Lieut. Abercromby. Capt. Fulton and Capt. Alston two solos each on Bristol *F 8*, Major Higgins two and Lieut. Abercromby one flight on *F 8*. Lieut. Longmore, R.N., four flights on *Short 44*, taking up Lieuts. Shepherd, Young, Cholmondeley and Major Trenchard, each once. Capt. Gerrard, R.M.L.I., on *Short 43*, four flights, taking up Lieuts. Anderson, Courtney, Hubbard and Wingfield-Smith. Capt. Broke-Smith two flights on *Bristol F 7*, one alone and one with Asst.-Paymaster Trewin, R.N. Capt. Becke one and Capt. Salmond two flights on *Bristol F 7*.

In evening Capt. Fulton one solo on *Avro 2*, Capt. Gerrard on *Short 43* once with Lieut. Wingfield-Smith and once with Lieut. Lushington. Capt. Broke-Smith one long flight on *F 7*. Lieut. Longmore on *Short 44*, once alone and once with Lieut. Waldron.

R.F.C. (Farnborough).—Major Burke and Lieut. Longcroft both several long flights on *B E 1*, Capt. Darbyshire and Capt. Webb-Bowen both flights on *B E 5*. *B E 3* out testing wireless instruments. Capt. Raleigh on 100-h.p. Bréguet, Lt. Carfrae on Bréguet *B 3*, both flying at good heights. Capt. Raleigh, when rolling machine up to shed, in turning caught wing of *B E 5* and smashed several ribs. About 9.30 p.m. Airship *Gamma* came out in strong wind and rain and did half-hour's good flight, making good landing in spite of wind.

R.F.C. (Lark Hill).—Capt. Allen on Bristol monoplane for 30 minutes. Lt. Fox on *B E 2*, taking up Lt. Mackworth as passenger. Later Major Brooke-Popham on *B E 2*, also doing good flying for 35 minutes. Lt. Fox out again on *B E 2* to Southsea and back, taking with him Lt. Hartree as passenger, time being two hours. In evening Lt. Fox out on *F E 2* biplane, flying very well indeed. Mr. Gordon Bell on Martin-Handasyde for 20 mins. Lt. Mackworth on *B E 4* for a short time. Capt. Hamilton on Deperdussin for 30 mins. Mr. de Havilland on *B E 2* making six flights, taking up Lt. Porter of the 16th Lancers, Lt. Calthorpe, and Lt. Mackworth as passengers and flying for 33 mins. Lt. Fox on *F E 2* biplane for 20 mins. Capt. Allen on Bristol monoplane for 10 mins, flying well. Lt. Bettington two good flights on Bristol monoplane.

Hendon.—At Grahame-White School, work started at 6.45 a.m. under Mr. Lewis Turner. Lieut. Allen got in good half-hour's practice, after which weather too bad for further work.

At Deperdussin School, Mr. Brock and Cadet Robinson both doing straights on brevêt with good landings. Lieut. Hawker and Mr. Phelps rolling on taxi No. 1. Mr. Gill circuits on racer.

At W. H. Ewen School, pupils out early and got in splendid morning's work. Mr. J. H. James several flights, Mr. Apcar rolling a straight. Messrs. Ware and Edmund out on brevêt machine, put in several good flights; Lieuts. Bayly and McMullen showing improvement in straights.

Brooklands.—In morning no flying, rain and wind.

At Vickers School, in evening, Mr. Geere on *Vickers 2* straights.

At Sopwith School, in evening, Mr. Perry on school Farman testing air and afterwards handing over to Capt. Ellington, who flew good straights.

At Bristol School, in evening, Mr. Hotchkiss alone, finding wind very bad. Half hour later Mr. Merriam alone. Mr. Hotchkiss with Mr. Payze and Capt. Miller. Mr. Merriam with Lieuts. Ali and Fazil. Mr. Hotchkiss with Capt. MacDonell and Lieut. Hanlan. Mr. Merriam with Mr. Hall and Lieut. Loultcheff. Mr. Merriam and Lieut. Bettington on Anzani monoplane.

Southampton.—M. Salmet on Blériot arrived from Littlehampton *via* Southsea, giving exhibition flights there and over Southampton Common.

Northwich.—Mr. Hamel on Blériot arrived from Southport travelling up the Mersey, past New Brighton, Liverpool, and Warrington. On arrival, Mr. Hamel gave various exhibition flights.

Eastchurch.—Lieut. Malone, R.N., out on 100-h.p. tractor; Commander Samson, R.N., on 50-h.p. Short monoplane, Lieut. Gregory, R.N., on school biplane *34*. All made best use of temporary lull in weather.

FRIDAY, August 23rd.

R.F.C. (Farnborough).—Early, Lieut. Longcroft on *B E 1* in the rain making several long flights, wind very gusty.

Hendon.—At Deperdussin School, Lieut. Tucker and Lieut. Harker, Messrs. Spratt and Phelps all rolling on taxi No. 1.

W. H. Ewen School out at 5.30 a.m., but practice suspended early owing to rising wind.

Brooklands.—At Sopwith School, in morning, Mr. Hedley first on school Farman. Mr. Perry instruction to Capt. Ellington.

At Vickers School, in morning, Capt. Stott and Mr. Geere on *Vickers 2*, both straights.

At Bristol School, 5 a.m., Mr. Hotchkiss with Lieuts. Hanlan, Hope, Loultcheff, Fazil, and Capt. Price, Capt. Boger, Capt. MacDonell and Lieut. Glanville. Major Ashmore, Mr. Barnwell, Lieut. de la Ferté, Capt. Miller and Mr. Cheesman flying alone.

SATURDAY, August 24th.

R.F.C. (Central Flying School).—Lieut. Longmore, R.N., on *Short 44* with Master Mechanic O'Connor, and then M.M. O'Connor taxi-ing. Then Lieut. Longmore with Lieut. Cholmondeley, and later Lieut. Cholmondeley taxi-ing. Lieut. Longmore again with M.M. O'Connor and then O'Connor went for brevêt, but did not pass owing to bad landings. Lieut. Abercromby on *F 8* alone and disabled machine. Capt. Gerrard, R.M.L.I., on *Short 43* three times with Lieut. Lushington and once alone. Lieut. Hubbard two and Lieut. Henderson one flight on same machine. In afternoon Lieut. Gordon Bell flew over from Lark Hill on British Deperdussin to do flying tests.

R.F.C. (Farnborough).—Major Moss arrived from Basingstoke on Henry Farman, where he has been held up with engine trouble and bad weather for twelve days. Lt. Barrington-Kennett on *B E 3*, Major Burke and Lt. Longcroft on *B E 1*, Lt. Carfrae on Bréguet *B 3*, Capt. Raleigh on 100-h.p. Bréguet, Capt. Reynolds on Henry Farman, all flying until dark. One of best day's flying for a long time.

R.F.C. (Lark Hill).—Mr. de Havilland on *B E 2* for ten mins. with Mr. Gordon Bell as passenger. Lt. Fox on Deperdussin, after which Lt. Ashton made good flight for 15 mins Mr. de Havilland on *B E 2* with Lt. Fox as passenger. Capt. Allen on Bristol for a long time, but on landing happened to smash his under-carriage. Later Lt. Ashton made another good flight on Deperdussin. Mr. de Havilland on *B E 2*, flying beautifully round the aerodrome, making two flights for 30 mins. Lt. Fox on Deperdussin for 20 mins., taking up Lt. Calthorpe as passenger. Lt. Fox on *F E 2* for 10 mins. Major Carden out on Dunne biplane for 10 mins. and made a splendid flight, reaching fair height. The machine has good speed. Later Mr. de Havilland made two more flights on *B E 2*, finishing up the flying for the evening with a passenger.

Hendon.—Blériot School, at conclusion of weekly meeting school came out and Mr. Hall put in a couple of straights, *L B 1*, *L B 2*, *L B 3*, all being in use.

W. H. Ewen pupils out in evening. Messrs. Conran, James and Lieuts. Bayly and McMullen doing good work. Messrs. Sutton and Ware flying brevêt machine. Mr. Ewen out testing new 35-h.p. 2-seater Caudron, which was behaving splendidly.

Brooklands.—At Sopwith School, in evening, Mr. Perry on Farman flying wide circuits at over 500 ft. Mr. Hawker then on same machine circuits, followed by Capt. Ellington straights.

At Vickers School, in evening, Mr. Geere on *Vickers 2* flying excellent curves at over 40 ft., and apparently quite ready to take command of *Vickers 5*. Afterwards Capt. Stott on school machine, after several escapes from breaking up under-carriage, finally succeeded in doing so.

At Bristol School, 4.15 p.m., Mr. Merriam testing. Mr. Barnwell for second part of brevêt, which he flew in excellent fashion. Mr. Merriam then with Lieuts. Glanville, Hanlan, Pretyman and Carmichael. Mr. Hotchkiss out alone and then with Mr. Cheesman, Mr. Hall, Lieuts. Loultcheff and Carmichael. Mr. Merriam with Capts. Fazil, Abdullah, Aziz, Thethe, Ali and Mehmed. Mr. Hotchkiss with Capts. Boger, MacDonell, Styles, and Lieut. Penn-Gaskell. Mr. Merriam later with Capt. Macdonell. Mr. Hotchkiss with Lieuts. Hanlan and Pretyman. Major Ashmore and Mr. Cheesman alone. Capt. Brabazon went for his brevêt, taking 20 mins. for each part. Lieut. de la Ferté, Capt. MacDonell, Lieut. Gould, Mr. "Darracq" alone. Lieut. de la Ferté then for first part of brevêt. Mr. Summerfield, Mr. Cheesman, and Lieuts. Wanklyn and Playfair flying circuits.

In monoplane section: Mr. Merriam out on Anzani, Mr. Bettington following, flying good straights. A covey of partridges got up in front of machine when at far end of ground, one or two getting chopped up by propeller. Mr. Hotchkiss out testing same machine. Prince Cantacuzène then doing straights and, unfortunately, broke a propeller through hitting a bump on ground. Mr. Bettington out again on other Anzani monoplane.

Strathpeffer, N.B.—Mr. Hucks on Blériot made splendid exhibition flights over surrounding mountainous country, flying to Dingwall and back. Mr. Hucks evidently much impressed by need for proper aerodromes in the district. Maximum height reached during his flight was almost 6,000 ft.

Leamington.—M. Salmet arrived from Southampton on Blériot, covering 100 miles in about 1½ hours, flying low all the way owing to clouds. After arriving gave good exhibition flight.

Southend.—Mr. Noel on Farman hydro-aeroplane arrived from Margate *via* Sheerness.

Waterloo (Liverpool).—Owing to persistent bad weather and strong winds, hardly any school work has been possible for past week or so. On Saturday, however, pupils got out, Mr. Hardman starting first in dead calm and did two straights of over a mile; then Mr. Birch took charge, and immediately afterwards nasty easterly wind got up which made flying exceedingly tricky. Both pupils took it in turns to go out, and notwithstanding difficult wind got in lot of good practice.

Eastchurch.—Soon after 4.30 wind and rain ceased and for once a real flying evening occurred. Every aviator present made best use of it. Commander Samson, R.N., out on 50-h.p. Short monoplane, Lieut. Gregory, R.N., on school machine, then tested Etrich engine, and afterwards returned to *34* for twilight flit. Eng.-Lieut. Briggs, R.N., on school machine for circuits. Lieut. Malone, R.N., on 100-h.p. tractor biplane with Capt. Gordon, R.M.L.I., as passenger, and afterwards with Mr. Fowler as passenger. Lieut. Malone is certainly a clever pilot, and his handling of the big 100-h.p. tractor machine is excellent. Mr. Jezzi out on Jezzi biplane.

Purley.—Mr. Robert Slack on Blériot arrived from Hendon on I.C.S second tour.

SUNDAY, August 25th.

R.F.C. (Central Flying School).—Lieut. Parke, R.N., visited school in afternoon on Avro Army Competition machine, carrying a passenger, who had been doing type-writing during their flight from Lark Hill. In evening, M. Verrier also came over on Maurice-Farman competition machine.

R.F.C. (Lark Hill).—Lieut. Fox, with Lieut. Ashton as passenger, on *B E 2*, left for Weymouth, about 50 miles. In the afternoon they flew from Weymouth to Monmouth, covering the 83 miles in 80 mins.

Hendon.—At Grahame-White School at 5.30 a.m., Lieut. Allen did good straights; Mr. Turner instructing Mr. Marrick,

after which latter did good rolling alone. Lieut. Allen finished morning's work by doing more good straights, making excellent landings.

W. H. Ewen pupils out at 5 a.m. hard at work for over two hours. Messrs. H. H. James, Conran, and Lieuts. McMullen and Bayly showed progress in straights. Mr. J. H. James put in good flying. Messrs. Sutton, Edmund and Ware flying the brevêt machine well, when, unfortunately, the latter, thinking he was nearer the shed than he was, made rather a sharp turn which culminated in a bad *atterrissage*. Mr. Ewen brought out 35-h.p. Caudron two-seater and took all pupils up in turn for instruction. In evening Mr. Ewen again out with two-seater, taking several pupils for instruction.

Brooklands.—At Sopwith School, in morning, Mr. Hedley first on school Farman testing air before handing over to Capt. Ellington, who then flew improving straights for over half an hour. Mr. Hawker then went for his brevêt. In evening, Mr. Perry instructing Mr. Lane and carrying several passengers before dark. Mr. Hawker many circuits as if attempting to break record for endurance.

At Vickers School, in morning, Mr. Knight on *Vickers 5* flying strongly at about 1,200 ft. over Byfleet.

At Percival School, in evening, Mr. Percival out on Percival biplane for first time after reconstruction. The machine is now fitted with Adams-Dorman engine, which appeared to give plenty of power.

At Bristol School, as weather has been so bad lately, school turned out to take advantage of fine morning. Mr. Merriam first out testing, then with Capt. Ali, Lieut. Hanlan, Mr. Hall, and Capt. Fazil. Mr. Hotchkiss with Capt. Boger and Lieuts. Carmichael and Penn-Gaskell, Mr. Hall and Lieut. Pretyman. Mr. Pickles with Mr. Payze and Lieut. Pretyman. Mr. Merriam with Capt. MacDonell and Lieut. Glanville. Mr. Hotchkiss with Capt. Boger. Lieut. de la Ferté went for second part of brevêt very successfully. Lieuts. Wanklyn, Playfair, and Gould, and Messrs. Summerfield and Cheesman all flying alone. Mr. Merriam on Anzani monoplane before handing over to Prince Cantacuzène. Engine failed over sewage farm and machine turned turtle on landing, but, fortunately, without damage to pilot (except to feelings), or to machine except for broken propeller.

In evening, 4.45 p.m., Mr. Merriam out doing straights on Anzani monoplane. Mr. Hotchkiss on biplane and then with Lieut. Hanlan and Capt. Boger. Mr. Merriam in succession with three Turkish officers. Mr. Hotchkiss with prospective pupil, Lieut. Allsop. Mr. Merriam up with Lieuts. Loultcheff and Pretyman. Mr. Hotchkiss with Mr. Hall, Lieuts. Hope and Carmichael. Mr. Merriam with two Turkish officers and Capt. Price. Mr. Pickles with Mr. Payze. A good deal of solo flying was done by pupils. Major Ashmore went out for figure of 8, then went straight away for his brevêt, taking his ticket in really good style. Lieut. Wanklyn, Mr. Cheesman, Mr. Summerfield, Mr. "Darracq," Lieut. Playfair, Capt. Boger, and Capt. Macdonell all flying. Lieut. Gould then went for first half of brevêt, flying his figures of 8 at about 500 ft. in perfect manner, but landed about 100 yards from mark. Capt. Styles up with Mr. Hotchkiss and then alone for straights. Mr. England and Mr. Bettington out on monoplane.

Eastchurch.—Mr. Jezzi out on own biplane.

Purley.—Pretty exhibition by Mr. Robert Slack on I.C.S. Blériot, for benefit of Croydon Hospital.

The Week-end at Hendon.

On Saturday, after a wet morning, which flooded everything and resulted in a small attendance, the weather brightened at 3 p.m., and at 3.30 Mr. Lewis Turner got away on a Grahame-White biplane and gave an excellent exhibition of flying, lasting about 20 mins. At 4 o'clock M. Desoutter was out on No. 6 Blériot, giving a fine display in banking and switchbacking. Mr. Turner came out again, carrying several passengers, including Captain Tyrer. Meanwhile, Mr. Nardini flew his 50-h.p. Deperdussin, and Mr. R. T. Gates went out on 80-h.p. Henry Farman with passengers, both doing some fine piloting, the latter reaching an altitude of about 2,000 ft. At 5.30 Mr. R. Slack brought out his I.C.S. touring Blériot, and after attaining a height of about 1,000 ft. set off for Croydon. Mr. Gill was flying the little Deperdussin, and Mr. Turner finished the day's work by giving more passenger flights on the Grahame-White biplane.

On Sunday the weather was more settled, so there was a much better attendance and plenty of good flying from 3.30 p.m., when Mr. Turner, as usual, started things moving, after which there was one continuous din of running engines until dark. At one time six machines were in the air at once, so those who stay in town can evidently see more flying than holiday-makers who depend on advertisement flights for their knowledge of aviation. Mr. R. T. Gates, on the Henry Farman, was flying at a good altitude. Mr. Turner was up with a passenger on the Grahame-White biplane; M. Desoutter was on the Blériot; Mr. Ewen on his Caudron biplane; and Messrs. Nardini and Gill on Deperdussin monoplanes. The weather was excellent for passenger work, and Mr. Turner was kept busy, carrying over two dozen passengers during the day.

Mr. Slack's Second I.C.S. Tour.

Mr. Robert Slack has started another educational tour of about 500 miles, in continuation of the previous tour he so successfully finished on the 11th. He left the Hendon Aerodrome on Saturday afternoon, the 24th, at 5.40 p.m., bound for Purley. Owing to the clouds being very thick and laying as low as the 600 ft. level, Slack could not fly very high, only 1,200 or 1,400 ft. Steering entirely by compass, he picked up the waterworks chimney at Kempton Park, and thereafter steered by watch and compass without seeing anything at all until he sighted the white chalk cutting near Stoat's Nest. He landed on the new Woodcote Golf Links at Smitham Downs. Owing to his unexpected departure from Hendon there was no time to make any landmark, the only sign to Slack being a white flag; but he landed accurately on the spot about 26 mins. after leaving Hendon.

Slack's itinerary will include Brighton, Aldershot, Oxford, Chatham, and other places not yet decided on.

Work on Windermere.

In spite of changeable weather it has been a busy week, with plenty of flying. On three days the tractor biplane was flying well. It seemed fast, but did not "taxi" nicely, although it both rose and alighted easily. This machine, now known as *Sea Bird*, was originally built by A. V. Roe and Co. for Mr. Duigan, the Australian, and was recently fitted with float, balancers, a 50-h.p. Gnôme, and a locally-made "Borwick's" propeller by the Lakes Flying Co. It is quite a success.

Water Hen was out several times practising the sending of wireless messages. On Monday she had to come down with a passenger owing to a broken tappit, and on Thursday was brought home with her "Maxima" propeller broken, owing to the layers of walnut of which it is composed having become separated. No other damage was done. A joint official inquiry by the Home Office and the Board of Trade into the doings of hydro-aeroplanes on Windermere was advertised to open on Tuesday, August 27th. All who realise the importance of aviation must hope that this inquiry will lead to further countenance and support being accorded to what is still a young and struggling industry.

Mr. Astley in Scotland.

Too late, unfortunately, for inclusion in last week's issue, Mr. B. H. L. Hart, writing from Pitlochry, sent word that Mr. H. J. D. Astley had been doing some remarkably good flying in Scotland. He had been engaged to fly at a gathering at Crieff on Saturday, August 17th, and arrived there on Friday, accompanied by the 70-h.p. tandem Blériot which he has recently bought from Mr. T. O. M. Sopwith. The same evening he made a few trial flights.

On Saturday he made four flights, one with a passenger, flying over the surrounding country, reaching a height of 2,000 ft., as usual handling his machine beautifully. The country round Crieff is by no means ideal for flying, and the weather was not of the best, so he put up a fine performance.

On the Sunday, at 2.35 p.m., Mr. Astley left for Edinburgh, but came down at Portobello owing to a thunderstorm. Later in the day he flew on to Berwick-on-Tweed.

When Mr. Astley, on his Blériot, landed at Berwick-on-Tweed on Sunday of last week he had a rather quaint experience. In the field were a number of young bullocks, who, as soon as the machine appeared, apparently went mad and tore round the field. Directly the machine stopped they charged it in a body, and when Mr. Astley jumped out and drove them away they raced round him and charged from the other side. It was only by strenuous efforts that he kept them off till some soldiers arrived and hauled the machine to safety. Evidently the bullocks thought the machine was some new and awful kind of gad-fly, which they knew was at their mercy when on the ground.

Next morning, when Mr. Astley was going to start again, the cattle were driven into a corner of the field, but as soon as ever the machine began to move they broke loose and charged after it down the field, pursuing it till stopped by the fence.

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VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, SEPTEMBER 5, 1912. No. 10.

ENTRANTS IN THE DUBLIN-BELFAST RACE.



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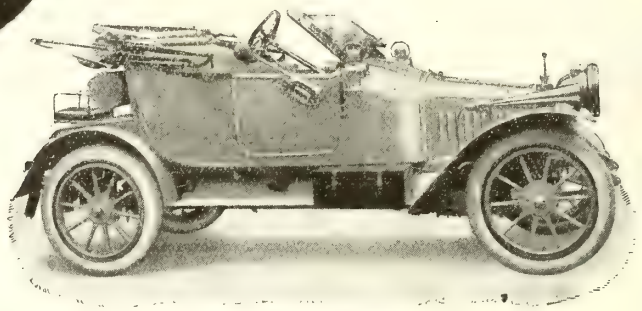
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The Results of the Military Aeroplane Competition.

At any rate, there is now no doubt as to what the Army—irrespective of the Navy—wants in the way of aeroplanes, and when the Army wants a thing really badly it generally succeeds in getting it. Hence the somewhat startling awards in the Military Aeroplane Competition, which gave such a shock to so many people on Friday last, and incidentally met with more general approval from those not financially interested in the trials than any other possible award could possibly have done. The Englishman is quite a variety of things he would not be if he had more brains, but at his worst he remains a sportsman, and Mr. S. F. Cody's victory was hailed by one and all with the satisfaction that one feels when a personal friend obtains his long-overdue deserts.

The fateful announcement was made with official conciseness thus :—

COMMUNIQUE.

Result of the Military Aeroplane Competitions.

The Secretary of the War Office announces that the Army Council have decided, on the recommendation of the Judges Committee, to make the following award of prizes in connection with the recent Military Aeroplane Competition :—

(a) Prizes open to the world for aeroplanes made in any country :—

1st prize (£4,000) to S. F. Cody for Cody Biplane (British) No. 31.

2nd prize (£2,000) to A. Deperdussin for Deperdussin Monoplane (French) No. 26.

(b) Prizes open to British subjects for aeroplanes manufactured wholly in the United Kingdom, except the engines :—

1st prize (£1,000) to S. F. Cody for Cody Biplane No. 31.

As no other British aeroplane completed all the tests, the two second prizes will be withheld, but the three 3rd prizes of £500 each are awarded to :—

The British Deperdussin Company, Limited, for Deperdussin Monoplane No. 21.

The British and Colonial Aeroplane Company, Limited, for Bristol Monoplane No. 14.

The British and Colonial Aeroplane Company, Limited, for Bristol Monoplane No. 15.

The following entrants, whose aeroplanes were submitted to all the tests, will receive £100 in respect of each aeroplane :—

M. Ducrocq for Hanriot Monoplane (French) No. 1.

M. Ducrocq for Hanriot Monoplane (French) No. 2.

The Aircraft Company, Limited, for Maurice Farman Biplane (French) No. 22.

L. Blériot for Blériot Monoplane (French) No. 4.

L. Blériot for Blériot Monoplane (French) No. 5.

A. V. Roe and Company, Limited, for Avro Biplane (British) No. 7.

War Office, August 29th, 1912.

It is brief, businesslike, and to the point, and, turn it which way one will, it is hard to see how the judges could have come to any other decision, considering what they wanted. They were not out to find the aeroplane which was the most efficient aerodynamically, nor the one which came nearest to automatic stability, though both these desiderata would be advantageous in a military machine. They simply wanted a machine which is fast, strong, able to climb quickly, capable of alighting on bad ground, able to pull up quickly, and, above all, one which gives the observer the best chance of observing. Cody gave it to them, and he got the big prizes as a reward. Other machines beat him on every individual point, except in range of speed, but none of them averaged so well all round.

It may be argued that his terrific speed, 72.4 miles an hour, is only obtained by sheer brute force, but that does not enter into the question. The military aeroplane simply has to get there, at no matter what expense. Also, it may be that his machine depends on the skill of the pilot to keep it in the air more than some others do; but is not the Central Flying School in existence simply to teach pilots to keep machines right side up? The pilot is simply there to act under the observer's orders, and everything, so far as the purposes of this competition are concerned, is subordinate to the fact that the observer shall get his information as quickly and as fully as possible.

The Second Prize Winner.

The French Deperdussin, which took second prize, magnificently flown by M. Prévost, was beaten by Mr. Cody on speed in assembling, range of speed, speed in flying, gliding angle, and in quickness of pulling up. Presumably it owes its high place to its all-round high class as a flying machine, to the excellent facilities of observation, which, owing to the position of the observer behind the wings, are almost as good as in the Cody and Maurice Farman, and to its ability to land in rough ground which also counted in its favour. This latter point will assuredly lead to the fitting of bigger wheels on all military machines.

The tandem Blériot has the same facility of observation as the Deperdussin, but it was beaten in flying and climbing speed, though in gliding it beat the Deperdussin, and in its road transport test also. Considering that the Blériots only had 70-h.p. Gnômes against the 100-h.p. of the Deperdussins and the Hanriots, their performance was notably good; but, as has been pointed out, economy of power does not enter into the question. Nevertheless, one may be sure that M. Perreyon's good work on the Blériots will mean good orders for his firm ere long, especially as the Blériot has for years shown itself second to none as a safe machine in bad weather.

Actually, one of the most remarkable features of the competition was the level flying of the two Hanriots. Making allowance for the fact that M. Bielo-

vucic has had some two years' more experience than Mr. Sippe, the machines show that one Hanriot is exactly like another. As was pointed out recently, the two machines, when weighed without pilot or fuel, only differed by 1 lb. In climbing, where piloting tells, M. Bielovucic beat Mr. Sippe by only 15 sec. In high speed the latter did 75.4 m.p.h., and the former 75.2 m.p.h.; but in low speed, again a question of pure piloting, the former got down to 59.9 m.p.h. against Mr. Sippe's 66.6 m.p.h. In gliding, "Bielo," on sheer skill, did 1 in 6.6 against Mr. Sippe's 1 in 5.9; but, in pulling up, the former, took 120 yards against Mr. Sippe's 119. The closeness of the figures is most remarkable, and both machines were several miles an hour faster than anything else there. One might reasonably have expected them to have occupied a higher place, but here, again, military exigencies told, and they were placed lower by the test of observation, and that of ability to land in really rough ground.

Further, as regards the Hanriot, it is possible that their likeness to the Nieuport has told against them. There is here, as in the French Army, a strong prejudice against the Nieuport type, on account of the alleged impossibility of getting them under control if they dive past a certain angle. No one questions the efficiency of the type or its stability, up to a point; but the fact remains that the prejudice, supported as it is by a record of unexplainable accidents, does exist, though strangely enough the number of fatal accidents on Nieuports has been extremely small.

It is claimed that the Hanriot is aerodynamically quite different from the Nieuport, though the superficial resemblance is strong, and it might be as well if the difference was made as clear as possible by the designers of the machine.

The Maurice Farman, fine flier as it is, could scarcely expect to come into the list of big prizes, seeing that its speed in flying and climbing is so much below the others. Still, its facility of observation and excellent gliding angle entitled it to honourable mention, as was recognised by the £100 prize. And it must be remembered that the machine is M. Verrier's old "aero-'bus" from Hendon, an absolutely standard machine in every way, with low power for such a strenuous competition, so that as a performance the machine's behaviour throughout ranks very high indeed.

The Avro presumably came into the prize-list on account of the value foreseen for the new enclosed type of body. The theoretical efficiency of the machine, with its 60-80-h.p. Green engine, was good, as compared with some machines with 80-h.p. and 100-h.p. engines, but it was much slower in climbing and somewhat slower in speed than the 70-h.p. tandem Blériot, whose engine is supposed to give about 60 h.p.; and anyhow, as has been said before, the prizes are given for practical performance, not for theoretical efficiency. The new type certainly has a great future, and, with the power plant arranged to give greater efficiency, this same machine could certainly put up a much better performance.

The British Competitors' Class.

So much for the prize-winners in the class open to the world. One can only regret that only the two big prizes of £4,000 and £2,000 were allotted to this class, for it has so turned out that in their desire to encourage British manufacturers the authorities have been less than just to foreign competitors. In the British class there was a first prize of £1,500, two seconds of £1,000 each, and three thirds of £500 each, so that every British competitor of note should at least have been able to pay his expenses. In the result we find Mr. Cody, an Irish-American, the only "British" competitor to pass all his tests. Therefore the judges very justly withheld the two £1,000 prizes altogether, and somewhat generously gave the three £500 prizes to the British Deperdussin, and the two Bristols.

The Deperdussin is a thoroughly sound machine, and the fact that it did not get through quicker was apparently due to the impossibility of having MM. Védrines and Prévost both doing their tests at the same time—such are the ways of "star turns." When Védrines did arrive, the weather prevented him from flying before he had to leave for America, so the machine was very gamely hustled through almost all her tests in two days by Mr. Gordon Bell.

The Bristols flew fast and glided well, one of them being a shade faster than the Cody. Mr. Busteed's glide and Mr. Pixton's flight in a high wind were remarkable, and these two fine pilots have added notably to their reputation by their performances. But the machines did not complete all their tests, Mr. Busteed's refusing to get out of the ploughed field properly, though success in this would have completed his tests. Presumably the chief reason for not placing the machines higher was simply the lack of facility for observation, as compared with the Cody, and Farman, or the French Deperdussin and tandem Blériot. The machines seem highly efficient, as they carry a big load per square foot of surface, but it is possible that the military authorities prefer light loading of the planes, as being less likely to strain the wing structure, and this may have weighed with the judges.

What the Army Wants.

Taking the awards as they stand, and drawing fairly obvious deductions from them, one may learn some useful lessons. Firstly, to secure military orders at the moment machines must be fast. They must afford a perfect view below, and at least a fair view in front—the vertical view below is the most important as that gives the shortest distance to the object observed. Economy of fuel is no particular object. Strength of structure is very important. Propellers are preferred to tractor-screws, because the latter interfere with observation, owing to their slip-stream and to their oil-slinging habits. A good gliding angle is good, but ability to land anyhow anywhere is better, for though it is nice to be able to pick a landing place, it is better still to be able to land safely wherever luck plants one. On all these points Cody and his genius for common-sense scored. The same points can be got in other machines without in the least imitating Mr. Cody, but they have not yet been attained to the same degree as in his.

Mr. Cody's Future Work.

It is rumoured that Mr. Cody intends to retire from aviation on his winnings. He is a man of simple tastes and could easily do so. But let us hope he will not. He should certainly give up flying, for he is much too valuable to the country to be allowed to risk his neck playing tricks in the air for his own

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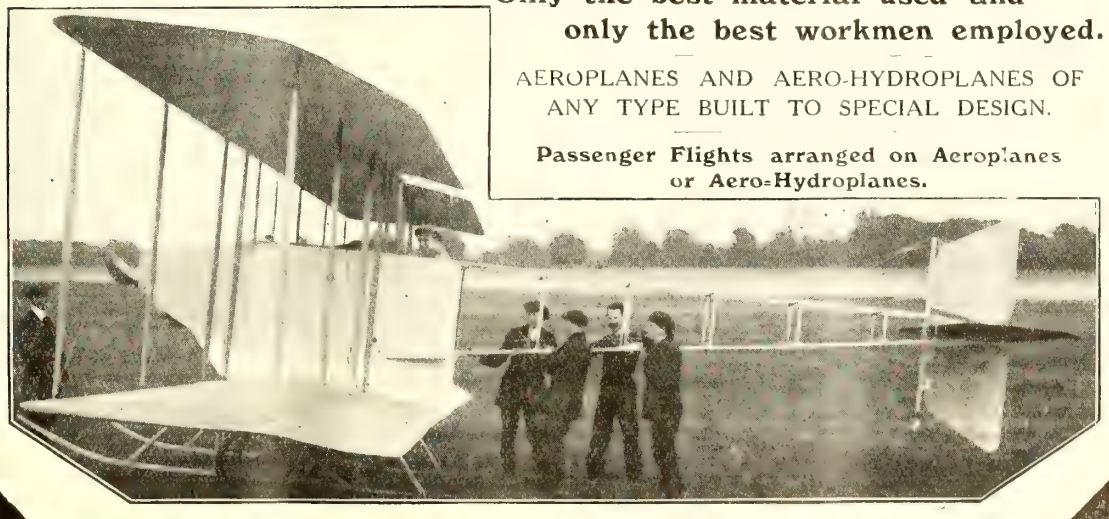
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amusement; but Mr. Cody, having the gift of perpetual youth, will scarcely be able to persuade himself to stay on the ground, or even to confine himself to staid and sober test flights on new types. He is bound to break out every now and then, and go steeple-chasing as usual.

It is, therefore, really someone's duty to put the resources of a big workshop at Mr. Cody's disposal so that he may build as quickly as possible some of the machines he has already designed mentally. Alone he will take years to carry out all the experiments he wants to try. Properly equipped, he could do as much in a year as would keep our scientists busy explaining for a decade.

Moral Effects.

The Military Aeroplane Competition has, however, done more than prove the cleverness of Mr. Cody: it has had much more far-reaching effects. It has made for mutual respect between the better class men in the industry and the army generally. The officers of the Royal Flying Corps, in particular, have impressed the constructors with their knowledge of the theory of aeroplane work and their appreciation of good workmanship. And besides, their steady flying day after day in awful weather has done much to teach the civilian pilot that he is just in the ordinary run of things and not a special compound of racing-car driver and archangel. What we want are sportsmen-aviators, not trick-flyers, and the latter still have to learn that they are only a mixture of chauffeur and tight-rope walker. The more this fact is impressed on people the better, for nothing does more to prevent the right sort of sportsman from flying than the idea that one needs to be a special kind of hero to fly at all. The really good sportsman knows he is not a hero and hates posing as one, so he does not fly, either because he believes in the hero idea and fears he has not courage enough, or knows it is humbug and refuses to be lionised under false pretences. When this interesting fact is more widely known we shall have more men flying for sport and fewer from vanity, and the officers of the Flying Corps have done much to help progress in this direction.

A Tribute to the Authorities.

Finally, the Judges' Committee can never be sufficiently thanked for their unwearying patience with all the little troubles and worries of the competitors. The sound businesslike way the competition was run demonstrated their common-sense, as strongly as their treatment of the competitors showed their kindliness and desire to help everyone connected with aviation. The various officers who acted as observers on the machines, and as assistants to the judges throughout the competition, have also won the respect and personal regard of everyone who has met them. Where all were so excellent, distinction would be invidious, but one cannot help saying that the officer who in the ordinary course of his duty will go up as a passenger with a pilot and on a machine whose capabilities are practically unknown to him is a very much braver man than any pilot flying under the incentive of reward in cash or kudos.

The Lesson.

There are those who hold that the competition has been a failure; on the contrary it has been of the greatest value, simply for what everyone has learned from everyone else. True, the British constructors have been more or less a failure, but, then, British constructors always are failures at the beginning of everything. The Romans had to come and show us how to make roads. The Normans had to teach us how to keep the "people" in order. The Flemings had to teach us to weave. The Germans had to teach us how to make a religion. The Italians had to teach us how to run a restaurant. The Americans had to teach us how to make watches, and boots, and bicycles. The French taught us what manners we have got, some appreciation of art, and how to build motor cars. Now the French and an Irish-American are teaching us how to build aeroplanes. Let us be good children and learn our lessons willingly.

As Mr. Kipling, ever apposite, said ten years ago:

"Let us admit it fairly, as a business people should,
We have had no end of a lesson: it will do us no end of good.

Not on a single issue, or in one direction or twain,
But conclusively, comprehensively, and several times, and again,
Were all our most holy illusions knocked higher than Gilderoy's Kite,
We have had a jolly good lesson, and it serves us jolly well right.
It was our fault and our very great fault, and now we must turn it to use;
We have forty million reasons for failure, but not a single excuse!

So the more we work, and the less we talk, the better results we shall get,—
We have had an Imperial lesson; it may make us an Empire yet."

Mr. Owen's Views.

Mr. J. Owen, whose notes in the *Westminster Gazette* are always well worth reading, writes as follows:—

"I have read with much interest and some little resentment your leading article based on my article in the *Westminster Gazette* on the general inferiority of British aeroplanes.

"In the first place, it is wholly untrue to say that Mr. C. C. Turner discusses my contentions—for, after all, they are my contentions—with considerably more inside knowledge.

"He has not done so, and you must know it, and I challenge you to point out a single inaccuracy in what I said concerning the War Office trial machines.

"What makes your article ludicrous is that while you assail me for condemning the British industry root and branch, and exploit Mr. Turner's superior wisdom in the process, you confirm and reconfirm in almost every line of your lengthy argument all that I said; but, better still, the Judges Committee of the Army Council in its awards has done so, and now the respective value of what we wrote can be better appreciated.

"My business on Salisbury Plain was to study the question in all its phases, and on summing up the value of the trials I spoke the truth without fear or favour, as nothing could be more harmful to the development of the aeroplane industry of this country than to write in praise of a class of work which to say the least leaves much to be desired.

"I did not, as you sarcastically suggest, look for cabinet-making jobs, but rather for soundness of workmanship and a continuity of ideas, and if a firm cannot make a safe job they must make room for others that can.

"Mr. Cody has triumphed by rule of thumb, but the science has advanced too far for the continuance of this principle, as natural geniuses like Mr. Cody are not born every day."

The editorial in question referred to Mr. Owen's charge of bad workmanship in the British machines, about the one point in which they nearly all excel. Otherwise he is welcome to his opinions, which may be as good as those of anyone else.

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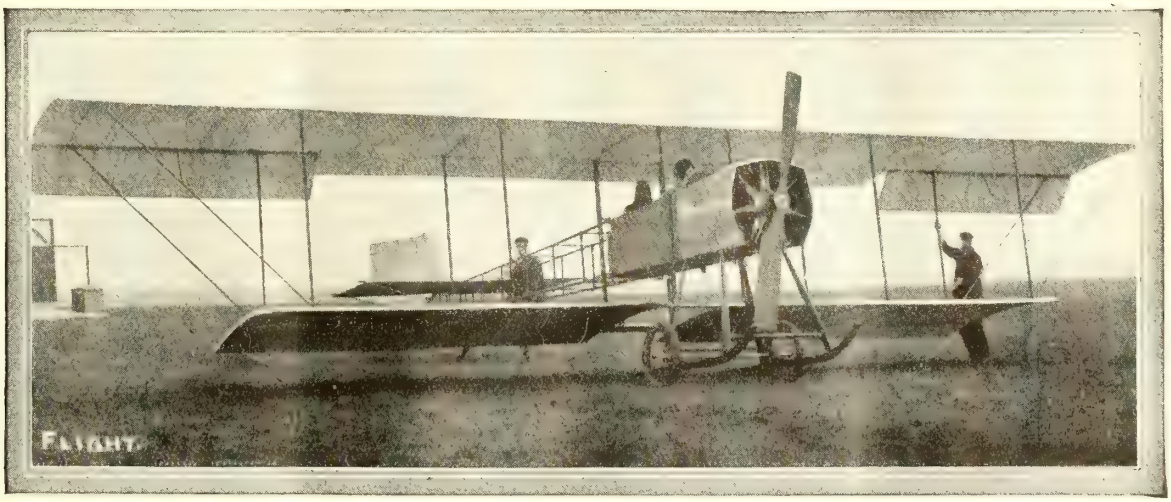
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Cavalry and the Aeroplane—*Continued.*

BY W. E. de B. WHITTAKER

The mounted man has through all time acted as the getter of information except when an engagement is in progress. The use of cavalry for scouting purposes differs in form with each individual leader. During the eighteenth century, when the methods of warfare were bound in a type of rigid conventionality, the formation of the average column was denser than at almost any other period. As rules of action regulated the battle-field as rigidly as the formalities of the ball-room, both sides observed the same unwritten laws and fought and died according to routine. It would have been a breach of gentle courtliness in the armies of some foreign Powers of that day had a cavalry screen been thrown out farther than, say, fifteen miles. Then, after years of routine of this sort, there would rise a star of the first magnitude—a Maurice of Saxe, a Frederick of Prussia. All conventions broken, scouting became a high art, and information rapidly gained was rapidly used. At the end of the century Napoleon appeared, and with him cavalry reconnaissance extended. Originally a subaltern of artillery, there was none who knew so well how to use cavalry and who realised so clearly the importance of that arm. His detailed instructions to his marshals show clearly his view. Frequently the screens of cavalry working with his armies were as much as fifty miles in advance of the main body of troops.

An extract from General Sir Francis Clery's book on *Minor Tactics* will summarise this: "In Napoleon's march to the Vistula in 1806 his orders to his marshals abound in instructions for the employment of their cavalry in covering the advance. Augereau, ordered to occupy Custrin, is directed to push his cavalry to Driesen, fifty miles farther. Lannes, ordered to march from Stettin to Schneidmühl, is enjoined to cover his left flank with his cavalry as far as New Stettin, forty miles distant. Davoust, at Frankfort, is ordered to move an advance guard to Messeritz, thirty-five miles to his front, and his light cavalry to Posen, eighty miles farther on. Subsequently, Lannes is ordered to occupy Thom and push his cavalry towards Königsberg and Grodno, 'to have positive information of the Russians.' Davoust to move to Guessen, and send Milhaud's and Beaumont's cavalry to the front as far as Klodawa, about eighty miles farther. Again, in 1809, we find Davoust in his flank march from Ratisbonne to Abensberg, pushing his cavalry to reconnoitre in all directions towards the enemy. In the Russian campaign of 1812 Murat's cavalry covered the front of the French, sometimes as much as fifty miles in advance. In the same campaign the Russians, on their side, pushed forward their reconnoitring parties similar distances to search out and report on the movements of the French."

It must be realised that, if cavalry scouts are operating fifty miles in advance of the main body of troops, they are actually twenty-four hours away so far as the conveyance of news is concerned. Thus the movements of an army are altered a day later than the discovery of hostile dispositions necessitating such a change. The rate of movement of troops has not varied greatly in the course of time. The motor-car and the motor-cycle have only slightly accelerated the conveyance of information, and that, too, only under the most favourable conditions. Topographical considerations are a great deterrent. As campaigns are not carried out on open plains in every case, and as the high roads are not invariably conveniently placed, the mounted messenger is still supreme. There is, of course, the field telephone, electric telegraph, and "wireless"; but their reliability is not constant.

At this point the aeroplane enters. The contour of the country matters nothing. There may be miles of rolling forest, of desolate marsh-land, but the aeroplane is unaffected. It can take the shortest cut, whatever the nature of the land. But more important than this is the question of speed. A journey which previously would take twenty-four hours for even the hardest of riders can be done in a single hour on an aeroplane.

Frequently it is the case that a general has to make dispositions based on surmise as to the position of the enemy. He gets broken messages and scraps of news from which he has to form a decisive opinion. To act on this opinion he has probably to move his troops some considerable distance, involving the fatigue of a long march. His view of the enemy's movements may be accurate or not. Assuming that it is inaccurate, or that the enemy makes an unexpected alteration of position, the weary march becomes useless. He has tired his men and wasted time to no purpose. Possibly he is in a worse position than before. All this is due to the slow rate of progression of the messengers from his cavalry screen.

If, on the other hand, he employs aeroplanes, there is no need for a useless march. He can learn positively whether hostile troops are at a certain point or not. At this time, as his movements are purely strategic, reports as to the enemy's disposition need not be in close detail. It is sufficient to know whether hostile troops are at a certain point or not. Detail becomes important at a later stage.

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does not seriously affect the work of the cavalry. The aviator has, in so far as he is capable, to ascertain the position of the enemy and to note any movement. So far does he in a sense supersede the cavalry scout, but no further. The cavalryman's duty, it would seem, is to explore the country itself, discover fords across rivers, and mark strong positions for artillery—in fact, prepare the way for the following army. The aviator can only guess the condition of the grounds; the cavalry scout can determine it with certainty. The aeroplane observer may judge it possible to move troops in attack across a certain space, believing that it is grass land. Only the land scout can realise that the space is really an impassable marsh or a field of growing corn.

No special type of aeroplane is required for co-operation with cavalry. The machine employed by the Staff is the one which will work with the mounted arm. Both arms—cavalry and flying corps—are working for the same end but in different ways. The reports made by both will be classified by officers on the Staff.

The Royal Flying Corps.

Lieutenant R. Fitzmaurice, R.N., is transferred from the Naval Ordnance Department of the Admiralty to the *Actæon* for wireless telegraph duties with aircraft.

General Sir H. Smith-Dorrien has issued instructions dated August 24th regulating the conduct of troops in relation to aeroplanes. Troops, when an aeroplane is about to land, are to collect in groups close to trees and fences, leaving an open space for the machine. Troops must not crowd round an aeroplane standing on the ground. Assistance is only to be given in response to a request from the pilot. Pilots are not to mimic the process of coming to ground unless they intend to land. Parties are to be detailed to assist in the landing of airships. These instructions are to apply at the Army Manœuvres.

French Military Aviation.

Lieut.-Colonel Hirschauer, Permanent Inspector of Military Aeronautics, inspected a ground at Camp-Français, near Lille, on which it is intended to instal a military aviation centre.

The Military Commission accepted at Villacoublay on August 19th five Nieuport two-seated monoplanes (Gnôme engines), at Mourmelon on August 20th five three-seated Nieuports, and at Villacoublay a day or two later another five two-seated Nieuports.

From the *Journal Officiel*, August 25th.—Engineers: Lieutenant-Colonels—Bouttieaux, from director of matérial of military aeronautics at Chalais Meudon to be commander of the *Sapeurs Aerostiers* at Versailles; Voyer, from commander of the *Sapeurs Aerostiers* at Versailles to director of matérial of military aeronautics at Chalais Meudon.

Chefs de bataillon:—Lindecker from the military aeronautics establishment at Chalais Meudon to be commander of a company of *Sapeurs Aerostiers* at Reims; Lamadie, from commander of a company of *Sapeurs Aerostiers* at Reims to be attached to the military aeronautics establishment at Chalais Meudon.

Lieutenant-Aviator Battini on a Maurice Farman biplane flew from Mailly Camp to Saint Cyr on August 25th in 2 hr. 50 m.

Lieutenant-Aviator Do-Hu on August 27th flew with an order from Casablanca to Mechra-Bennebon on a Blériot monoplane in fifty-five minutes. In landing he smashed his propeller against an unseen wire.

On August 28th France lost another gallant soldier in the cause of military aviation. Lieutenant-Aviator Louis Felix Maxence Chandenier (8th Infantry, attached Air Corps) left Douai on a Bréguet biplane at 5 a.m. with the intention of carrying out the first test for his military brevêt. After passing over Crécy-sur-Serre (Aiene) his machine was seen to fall to the ground. It immediately caught fire and the unfortunate officer was burnt to death.

Two two-seated Blériot monoplanes (tandem) were accepted at Etampes by the Military Commission on August 28th. It is intended that they shall take part in the manœuvres, in the *escadrille* of Captain Bellanger.

The following day three Henry Farman biplanes were also accepted for the Army at Buc. Chevillard flew them all over to Saint Cyr later in the day.—W. E. de B. W.

German Military Aviation.

The Ministry of War is at present considering some plan for the marking of aeroplanes that their nationality may be recognised in the air. This is one of the most serious problems in military aeronautics.

On August 24th and 25th fourteen aeroplanes were accepted for service by the Ministry of War.

Lieutenant-Aviator Detton left Halberstadt on a Bristol monoplane one day last week at 6.19 p.m. and flew to Barby, forty miles away, continuing his journey to Doeberitz the next morning.

"Z 11," the largest military dirigible balloon, was wrecked at Cologne on August 31st. While she was being manœuvred by a company of soldiers a gust of wind drove her against the walls of a shed. The bow compartment and propellers were smashed.

It is announced unofficially that the Government intends to promulgate an Aerial Defence Law similar in form and provisions to the Naval Law of 1898.—W. E. de B. W.

Russian Military Aviation.

The military aeroplane competition has, at the request of the manufacturers, been postponed until September 3rd. Twelve machines only will take part. The judging committee will have as president General Kirpitchew and will include officers of all branches of the Russian Service.

Two escadrilles of aeroplanes—the first of six Nieuport monoplanes under Capt. Garschkaw, and the second of six Farman biplanes under Lieut. Datskevitch—are to take part in the army manœuvres.—W. E. de B. W.

Norwegian Military Aviation.

The three Norwegian Army officers, Taulow, Sejersted, and Delhi, have now concluded their period of training at the Maurice Farman School, Buc.—W. E. de B. W.

Italian Military and Naval Aviation.

Commander Scelsi, of the Italian Royal Navy, is learning to fly a Curtiss biplane at the Paulhan-Curtiss School at Antibes.

Chinese Military Aviation.

The Military Aviation School recently opened at Nankin has been transferred to Canton. The school consists of five machines, under the charge of Mr. Wilcox, an American aviator, who is acting as instructor. Twenty-eight aviators are attached for practice at the moment. The inscrutable impassivity of the world-weary Oriental apparently does not desert him in the upper atmosphere. Mr. Wilcox speaks highly of the aptitude of his pupils.—W. E. de B. W.

Continental Notes.

M. Paumier flew from Issy-les-Moulineaux to Rouen on August 18th on an 80-h.p. Anzani-engined biplane.

M. Audemars, on August 18th, made an attempt on the Coupe Pommery, and on the Paris-Berlin Competition. Flying a Blériot monoplane (50-h.p. Gnôme), he left Issy-les-Moulineaux just after five in the morning in a slight south-west wind. He landed at Reims at 7.5 a.m. Four minutes later he left for Germany. He finally landed at six in the evening at Gelsenkirchen, in Westphalia. His distance is less by 90 miles than that of Brindejonc des Moulinais, and he has therefore not qualified for the Coupe Pommery. On the following day he flew to Berlin, landing at 6.50 p.m. on the Johannisthal Aerodrome.

M. Henry Farman and Mlle. Dutrieu still make extended flights on a Farman hydro-aeroplane at Trouville to amuse a crowd which inhabits this town to recuperate from the results of making (in Paris) a life of pleasure a habit instead of an interlude to break an otherwise cloying monotony.

The Vinet monoplane now makes cross-country flights. M. Vallier on August 19th flew from Issy-les-Moulineaux to Chatillon-sur-Marne, a distance of 130 kilometres, in one hour twenty-five minutes.

Mr. Rolane, the new chief pilot at the Nieuport School, Mourmelon, passed his first test for the military brevêt by making a circuit round Villacoublay, Orleans, Chartres, and Villacoublay on August 19th.

Experiments have recently been made on an Astra biplane of silencing its Renault engine. A high degree of success was obtained without any appreciable loss of power.

M. Frantz on a Savary biplane started from Chartres on August 22nd in an attempt on the Coupe Pommery. He intended to fly to some place in Hanover, but owing to unfavourable weather conditions was forced to descend near Mons at 8.50 a.m.

M. Bathiat, intent on winning the Coupe Pommery, left Calais at 5.39 a.m. on August 31st on a Sommer monoplane for the South. He made landings at Versailles, Chateau-

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renault, Poitiers, and Bordeaux, finally arriving at Contès, near Biarritz, at 6.45 p.m. He covered over 800 kilometres in the day—a record performance.

The biplane constructed by M. Paulhan over a year ago, and named by him the "Machine a voler," has been sold to M. Marchenay, the director of the new school at Port Aviation, and will be piloted by M. Camille Guillaume.

The approaching marriage is announced in Berlin of Fraulein Hedwige Beese, the aviatrice, to Herr J .C. Bautard.

M. Brindejonc des Moulinais made a second attempt on the Paris-Berlin flight on August 29th. He left Villacoublay at 5.25 a.m. One hour and fifteen minutes later he descended some kilometres on the German side of Mezières owing to valve trouble. The difficulty of getting his mechanics out to the machine made it impossible to restart that day, and M. Brindejonc des Moulinais returned to Paris by rail.

Italian Notes.

Sub-Lieutenant Piero Manzini's death by drowning on the 25th ult. in the sea off Tripoli hammers in the need of life-saving jackets. After overbanking, the Blériot came down onto the sea and began to sink in a few minutes. Manzini, who had been learning to swim, was then seen to jump out and attempt to reach the shore. A long sea-wall, necessitating a detour of many minutes, prevented the boats from arriving till after he sank.

This is the first death of an aviator in connection with the war in Tripoli. It is exactly ten months ago that the first flight took place. Manzini learnt at Pau some time back, if my memory serves me.

We are actually to have a flight or two here at Menaggio on Sunday. People with tennis courts are very anxious. The ignorance still living is astounding.—T. S. Harvey.

Mr. Astley Distinguishes Himself Again.

Mr. H. J. D. Astley has again justified the high opinion some people have formed of his ability as a flier, for on Wednesday of last week, August 28th, he made a particularly fine flight from Hendon to Paris on Miss Trehawke-Davies's tandem Blériot, with the owner as passenger. They left Hendon at 7.45 a.m. in a nasty ground mist, which compelled them to fly very low, and arrived at Hardelot at 9.20 a.m. As soon as they alighted Mr. Astley wired, "Arrived 9.20; very foggy. All well." The same evening he wired, "Left Hardelot 12.45. Landed Tresnes for petrol 2.50. Restarted 4.5. Landed Issy 4.45. Ripping journey." Expressive, and to the point. It will be seen that the flying time was 4 hrs. 20 mins. Very good going, but showing that no help was received from the wind. This makes Miss Davies's fifth cross-Channel trip, and she showed her good judgment in entrusting herself and her machine to Mr. Astley, despite the fact that he had never flown to Paris before, and although she had never herself seen him fly.

"Waterplane Turns Turtle."

Heading from the *Evening News*:—Better than being a greyhound of the skies, anyway.

An Exhibition at Caerphilly.

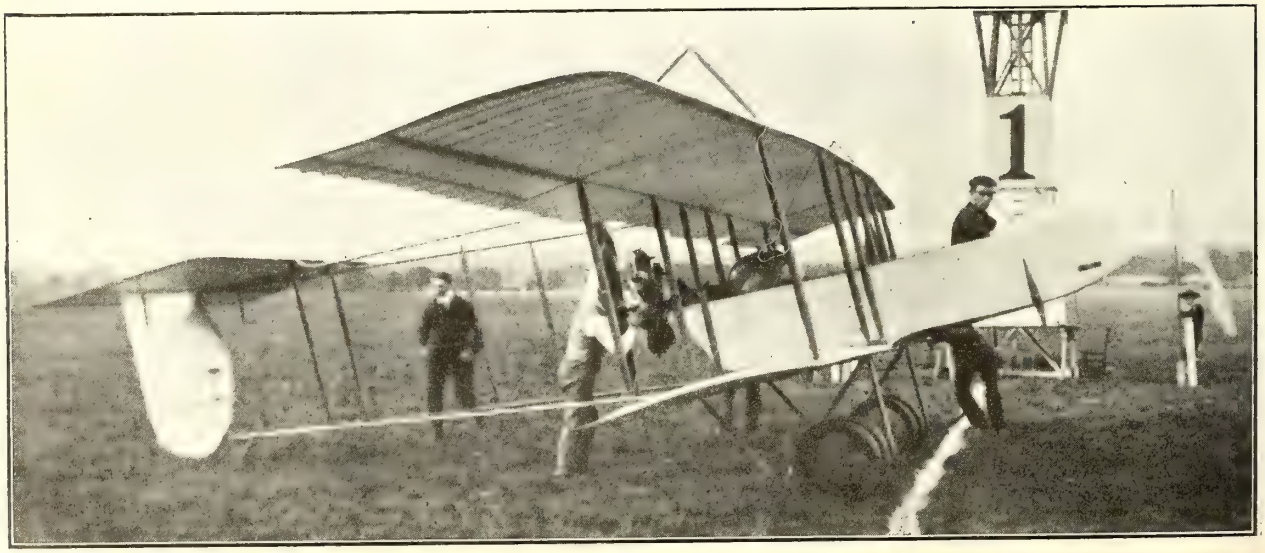
Never in the history of nations have the Welsh people been renowned for honesty, but neither are they apparently gifted with that simple courtesy that does so much to make life pleasant. Their ideas of sport apparently go little further than the baiting of stray dogs or the beating of women, except where semi-professional football is concerned. But this furnishes no reason for their incivility to those who fly to amuse them.

Mr. H. J. D. Astley was unfortunate enough to arrange to fly at Caerphilly in South Wales. His machine was taken there and erected. He arrived on Saturday to give the exhibition. A kind of fête was proceeding, including a lunch to the local notabilities, such as they are. On arrival he spoke to one of the persons responsible for the organisation, one who bore the prefix of Lieutenant-Colonel, presumably, one would imagine, of Territorials, and asked where it was possible to get some lunch. He was directed to the local public-house, where he obtained beer and bread and cheese—that is all. The amenities of the grocers' lunch must not be disturbed by the intrusion of an aviator, albeit one who has held His Majesty's Commission.

With that intelligence developed by a life of provincial mediocrity those responsible expected Mr. Astley to rise from a field which had in the centre three large marquees holding the local lunch, and round the sides many jumps for horses. Mr. Astley had to find another field from which to fly. He succeeded by excellent luck, and made a flight. He was brought down by engine trouble some distance from his starting-point. The owner of the ground on which he descended upheld gallantly the reputation of Wales, and wished to turn Mr. Astley and his machine out of the field. Mr. Astley's mechanic had to walk from the fête ground to the landing place as none would place a motor car at his disposal. The whole day was, in fact, uncomfortable and unpleasant. Perhaps other aviators will take warning.

The King and Aviation.

It is satisfactory to note that His Majesty the King continues to show his interest in aviation, as was instanced by his wish that Mr. B. C. Hucks should give a "command performance" at Balmoral on Tuesday last. The honour done to a "*Daily Mail* airman" seems somewhat to have upset the memory of that enterprising publication's "airmanship" expert for the current month, for though he recalls the reception of Mr. Hamel (another "*D.M.* Airman") by His Majesty "after he had won the *Daily Mail* Flying Derby round London"—which he did not win morally and has not yet won legally, the said expert entirely omits to mention the personal and unadvertised reception by His Majesty at Windsor Castle of a certain young aviator named T. O. M. Sopwith, who flew to Windsor on an all-British Howard Wright biplane nearly two years ago, the said young aviator having previously captured the World's Record for a cross-country flight by flying the same machine from the Isle of Sheppey to Belgium. It is also interesting to note that the same unmentioned pilot was the actual winner of the *Daily Mail's* own "Flying Derby."



M. Noel on the new Henry Farman biplane (80-h.p. Gnôme) at Hendon.

Military Aviation Trials.

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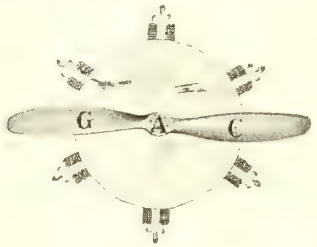
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A Good Day for the Deperdussin.

The Deperdussin firm seem to possess a kind of inverted superstition, in that their strokes of luck always seem to come either on the 13th or on a Friday. Last Friday, for example, the 100-h.p. French Deperdussin flown by M. Prévost in the military competition, and the 100-h.p. British Deperdussin flown by Mr. Gordon Bell, were taken over by the Army for use on manœuvres, when the former will be flown by Captain Hamilton and the latter by Mr. Bell. On the same day Mr. Bell put a new 70-h.p. Gnôme Deperdussin through its tests at Lark Hill, and handed it over to the Army, and Lieut. Porte, R.N., did the same tests with a 60-h.p. Anzani Deperdussin at Farnborough. Four high-powered machines delivered in a day is not bad business for one firm. May it be a happy augury for future trade. Incidentally the Navy Deperdussin, which M. Prévost and Mr. Santoni delivered by air at Eastchurch some months ago, has now had its hydroplane floats taken off, and is being flown at Eastchurch as a shore-going aeroplane, and appears to be very well liked.

Flying in Australia.

"Captain" Penfold, the Australian aeronaut and parachutist, writes that the postponed race between Hart, the Australian aviator, and "Wizard" Stone, an American, which was to take place at Sydney (referred to in The Aeroplane of August 1st issue), was carried out on June 29th last, the Sydney papers now to hand chronicling the event.

The starting point was Surrey Park, near Botany, the winning-post being at Parramatta, some fifteen miles off. The Australian got off the mark right from the word "Go," and making every church steeple (or shall we say rooflet?) a winning-post, arrived at Parramatta some twenty minutes later.

Hart is a native of Parramatta, and it can be realised that his arriving solus at his birth-place per the air was the signal for tumultuous applause.

Stone flew a Metz monoplane, and started some ten minutes after Hart. Stone, however, seems to have got caught in a rain-cloud, and was fluttering around for half an hour before effecting a landing eleswhere than at the winning-post. Hart having finished first and carried out all required of the competitors, duly received first prize and the honours of victory.

Stone's explanation of his failure to reach Parramatta is as follows:—"I was up about 3,000 ft., and was following the track of Hart, when a rain-cloud swept up, and I lost sight of the Australian entirely. I really took the wrong course afterwards. Until the cloud interfered I was making splendid headway. My guides told me to keep the river on my right when I caught sight of it. I saw a river on my right, but it was the wrong one. That led to the trouble. I was told that I would see a town, but the town I took to be Parramatta was another one altogether. By keeping the wrong river on my right I went seaward. A break in the clouds helped me to see that I was running in the wrong direction. Knowing that I was lost, I watched for a good landing place, and I came down after being in the air for half an hour."

An Addition to the Hydro-aeroplane Business.

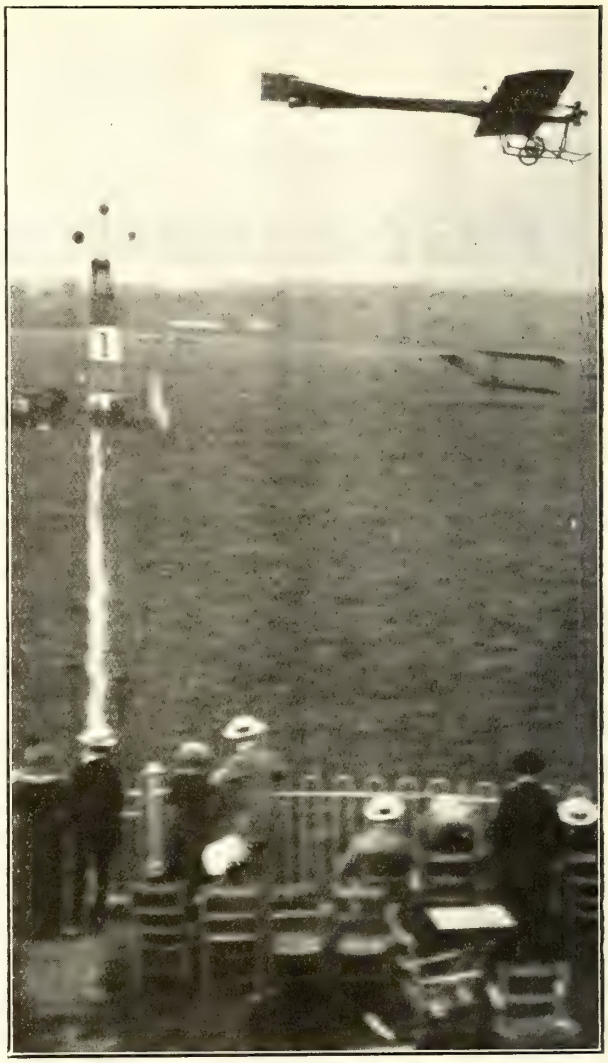
That well-known firm of engineers, yacht builders, and instrument makers who have adopted the unusual title of Hamble River, Luke and Co., Ltd., are now devoting a considerable amount of attention to aeroplane work, chiefly in connection with hydro-aeroplanes. At the present moment the firm are building a pair of floats for a 70-h.p. Henry Farman hydro-biplane, and another pair for an 80-h.p. machine. These floats are of an improved type built on the same system as a hydro-plane boat. The first pair is being built with both skins diagonal, and the second pair with the outer skin horizontal and the inner diagonal; the idea being to see which system of construction will stand the work better. The steel work in both these floats is being carried out by the firm, the first pair being fitted in a manner similar to that on the Farman hydro-aeroplane, and the second pair with a new system of fixing for the supports designed by the firm.

It is interesting to note that the firm have a first-class shed on their water frontage, which is capable of taking the largest-sized Farman hydro-aeroplane, and that their woodworking and other machine tools of every sort are particularly adapted for the construction and repair of aeroplanes.

The Leeds and District Aero Club.

The Aeroplane is informed that a meeting has been held for the purpose of forming a practical aero club for Leeds and district, fifty persons being present. The object of the club is the practical promotion of aviation. Members are to be taught the construction of aeroplanes, the handling of aero motors, and the assembling and adjusting of aeroplanes prior to flight, etc. Flying will be taught to members at a special tuition fee until Royal Aero Club certificate is gained. It it stated that a ground has been secured for flying, the central field or aerodrome measuring 600 yds. by 600 yds., on which it is proposed to erect hangars, etc. Demonstrations are to be given by practical men. It is stated that the scheme has been organised, and two machines—a biplane and a monoplane—placed at the disposal of the club, by a London gentleman. The club membership has been fixed at 5s. (five shillings) per annum. Anyone interested in this new scheme of reduced membership and tuition fees should apply for particulars to Mr. Tom Walker, of 5a, Hulland Street, Leeds.

One wishes the scheme every success, but it seems ambitious for a 5s. subscription.



Mr. Valentine flying the first British-built Deperdussin at Hendon last Saturday.

The Latest Ethereal Effort.

A correspondent signing himself "Horse Marine," writes: "The Army Council has sanctioned a reward, as high as two and sixpence sterling, to be paid to the lucky recruiting agent who raises a recruit for the Royal Flying Corps—provided the latter meets with final approval of the Military Wing.

"Incidentally, it is not stated whether the Naval Council has risen to such stimulating heights of generosity? . . . Still, with the Senior Service, it has always been a question of 'with but after' the Junior, so doubtless the leeway will be made up! . . . In the meanwhile, the wonder remains how low down would the Army Council go. It seems hardly likely that a really *good* aviator would be obtainable for threepence." Certainly aviator-chauffeurs are not yet "three a penny," but in this case the "recruit" desired is a mechanic or artisan, not the holder of a Royal Aero Club certificate.

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The Last Days of the Military Aeroplane Competition.

The Military Competition shut down somewhat suddenly. After the beautiful weather of the previous Saturday had been allowed to pass without progress being made the judges delivered their ultimatum and announced that anyone who wished could go for their three hours' test on the Sunday, and that afterwards the competition would be shut down as soon as four hours more of decent flying weather had passed.

As a result Mr. Bell and Lieut. Parke, R.N., took the British Deperdussin and the Avro through their duration test on Sunday, as related last week. M. Perreyon took General Henderson, and later Major Sykes, up on the tandem Blériot, these two judges having now personally tried every machine which has gone through its tests—a proof of the thoroughness with which they have done their work. Several other machines were also out.

Monday was a hopeless day, owing to weather.

Tuesday, the 27th, saw the end of the competition. The weather was excellent almost all day. In the early morning Mr. Sippe on the Hanriot and Mr. Busteed on the Bristol went for the plough-landing, but did not get out well.

A most remarkable performance was put up by Mr. Gordon Bell on the British Deperdussin, for he did all the tests bar the three hours', which he did on Sunday, in the day. He reached a high speed of 68.6 m.p.h., and got his low speed down to 54, which he described to me as the nastiest test of the lot. I have always held that this test was dangerous, and only shows how near the edge the pilot dare go. He climbed the first 1,000 ft. in 3 min. 45 sec. on a machine which Védrines said would not climb. He glided at 1 in 6.2, which was better than Prévost. He pulled up on the grass in 78 yards. He pulled up in the plough in 36 yards, and got out again, which no one else did on that day. Finally, he went for the 4,500 ft. climb, which he had not done on Sunday, because the clouds were so low and thick. In this he got up to 3,300 ft. in 12 min., and then his engine stopped, so that he had to glide all the way down. Thus the only tests he did not get through were the high wind test, because there was never enough wind after he took the machine over, and the altitude, because when he came down it was too late to start again. I think that after all that no one can deny that our friend Gordon Bell deserves to rank with the best pilots.

Incidentally, it is well worth noting that Lieut. Porte, R.N., on the Anzani-engined Deperdussin got up to over 4,000 ft. on three separate occasions, and once had reached 4,300 ft., when a spark-plug went wrong, and he had to come down. Taking it all round, the British Deperdussins well earned the £500 prize.

The real fun of Tuesday happened when five machines all at once attempted to do the ploughed field landing and all stuck in the mud. Then Mr. Cody flew over to show how it ought to be done, and he stuck also, quite as much to his own amusement as everyone else's, so all the crews turned to and helped to pull one another's machines out of the slough of despond.

By the way! Apropos of nothing in particular. Was there not something in the rules about machines being fitted with double controls? So far as I can recollect, even the eye of faith could not detect a second set of controls on the Cody, and on several of the other machines I have a notion that their second controls were not coupled up.

Of course, everyone is glad the trials are over, but those who have been through them in any capacity will always look back on their month on the Plain with pleasure, for a happy time it was, despite weather, work, and worry. And there is a certain solid satisfaction in the feeling that one has been helping, in ever so humble a capacity, in the making of history. Other trials, naval or military, may be held, but these will always be *the* Military Competition, just as the first Reims meeting is always *the* Reims meeting, and in years to come those of us who survive will tell newcomers to aviation strange tales of Cody's great victory, Prévost's beautiful flying, Verrier's quaint antics, Parke's horrible dive, "Bielo's" and Sippe's neck-and-neck struggle on their twin machines, Perreyon's dogged pertinacity in doing two men's work, Bell's fine finish on the last day, the continual climbing of the unlucky Porte, Pixton's fight with the big wind, Busteed's sound, steady work, the way the officer-pilots showed the professionals how to fly, the wonderful work of de Havilland on his pet biplane, and just a word in memory of poor, plucky little Fenwick, who went out, despite his skill and care, at the helm of his own machine—after all, a sportsman's death. It has been a great month, and we who were there may think ourselves very lucky.

C. G. G.



Brig.-General Henderson, C.B., D.S.O., and Major F. H. Sykes, Commandant Military Wing, Royal Flying Corps, at Lark Hill, during the Competition.

The Contributors to Mr. Cody's Success.

There is considerable interest in noting the firms to whom Mr. Cody owes his recent great success, thanks to his good judgment in choosing the best of everything.

It is fairly generally known that he used a 120-h.p. Austro-Daimler engine, which is said to give between 130 h.p. and 140 h.p., so that he always has anything from 20 h.p. to 50 h.p. in hand for emergency, so much so that he was able to do 68 m.p.h. on five cylinders, when a valve-tappet struck work.

This drove a British Integral propeller, built in M. Chauvière's own works in London, where excellent work is being done, and propellers are produced quite equal to the French product.

The engine was lubricated with the Vacuum Oil Company's "Vacuum A" oil, which, though not a low-priced oil, is cheap for its efficiency, and when used in this engine costs about one-eighteenth the price of lubricating a 100-h.p. rotary engine.

The fuel used was the British Petroleum Company's well-known Shell spirit, which was used by practically all the other competitors as well, and is noteworthy because of the reliability of its quality and the care which is exercised to ensure that no foreign matter ever gets into the tins.

The fabric of the planes, which has stood up magnificently to the strains set up by speeds of 70 to 75 miles an hour, has been treated with the famous Cellon dope, which has shown itself quite wet and weather-proof, as well as impervious to castor oil and petrol.

All these firms may well feel proud of the part their products have played in this classic victory.

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Notes on the Hydro-aeroplanes at St. Malo.

The Aeroplane's special correspondent at St. Malo, Mr. Denys Chataway, sends the following supplementary notes on the meeting :—

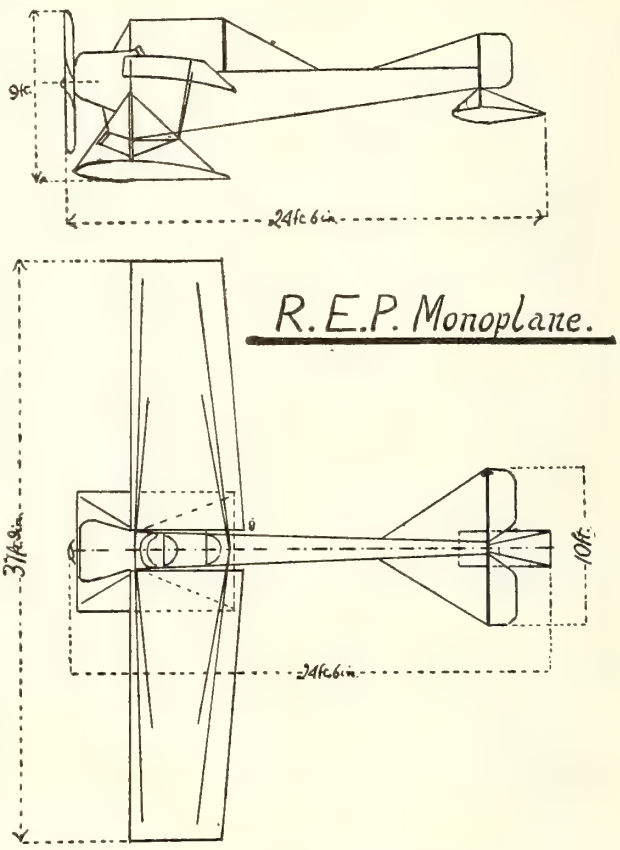
"The flying meeting is over, and on the whole I was disappointed. Saturday broke, half a gale was blowing (about twenty-five miles per hour), and I wagged a wise head and said 'No flying,' as the harbour is all surrounded by hills and the town. However, all turned out. The following completed the course: Molla (R.E.P.), Benoist and Rugère (Sanchez Besa), Busson (Deperdussin), Renaux (M. Farman), Labouret (Astra), and Mesguich (Paulhan). Train was not ready. Weymann dived into the water after doing a bit of the course and smashed the machine up, but he and the passenger got off all right. Chambenois, on the Borel, put his machine into the water, but it drooped onto a wing owing to a leaking float. 'Beaumont' got to the starting line too late, so could not start. Barra upset his Paulhan. Rugère's machine was unfortunately upset when being towed in.

"The second day, in the morning, 'Beaumont' had his machine out. Chambenois got out of the 'basin' awfully *cabré* and could not get back again, so he landed in the slush of the harbour (the tide being out) with no damage to speak of. Train got off as well as any, and did not fly badly; but he 'watered' 20 ft. up, pancaked, and cracked his float, so could not compete that afternoon.

"In the afternoon the following completed the course: Benoist, Labouret, Molla, Weymann, and Renaux. The last had three attempts. Busson was just going to touch the water before starting, but forgot to straighten up, so he and his two passengers had a bath, and the machine was well smashed up. I did not see the engine among the wreckage, so I don't know if it sank.

"Mesguich, on the Paulhan, had awful trouble with his engine. A portion of my family who were standing on the beach say that he missed the houses with great difficulty, wobbled, and finally came down into the sea, and taxied back. He tuned up his engine and started again, went right in across the land. Just past Paramé (fortunately) his engine stopped, and he had to land on ground which was fairly bad even for ordinary machines. Naturally, with a float it was hopeless. But he did not choose a happy spot, as he struck a bank and capsized. They say he was wobbling over Paramé (tail down, I suppose), and then dived. I saw the wreck. Being a small machine it looked fairly chewed up. The engine was standing on end, with the warp control squashed underneath. Luckily he was chucked out, or he would have had a nasty hole in his back. He broke a leg and two fingers. He cannot be much of a pilot, because he went out of his way to go over the land, for in a straight line he could have been within gliding distance of the sea the whole time.

"Monday was the remarkable day. The wind was quite 30 m.p.h. (of course, they got out of the dock). Five started for Jersey in half an hour; one gave up half-way and came back (Renaux), four completed the double journey, and arrived back within half an hour of each other.



"I append the results and times. Please note the speed of the Astra.

Name.	Time left.	Time arrived Jersey.	Left.	Arrived St. Malo.
(3) Benoist ...	8.9.5 ...	9.4.34 ...	10.22.53 ...	11.28.19
(4) Molla ...	8.13.17 ...	9.11.49 ...	10.51.0 ...	11.36.47
(2) Labouret ...	8.26.12 ...	9.15.25 ...	10.9.0 ...	11.7.58
(1) Weymann ...	8.56.33 ...	9.44.23 ...	10.18.55 ...	11.6.47



The Borel hydro-aeroplane, flown by M. Chambenois at St. Malo. Note the metal plating on the propeller.

Engine.	Passengers.	Time to Jersey.	Time back.	Corrected time.
(1) 100 Gnôme	1	47.50	48.52	1.40.24
(2) 12-cyl. Renault	1	49.13	59.18	2.11.0
(3) 80 Renault	2	55.29	1.5.26	2.49.14
(4) 80 Gnôme	0	58.32	45.47	2.53.3

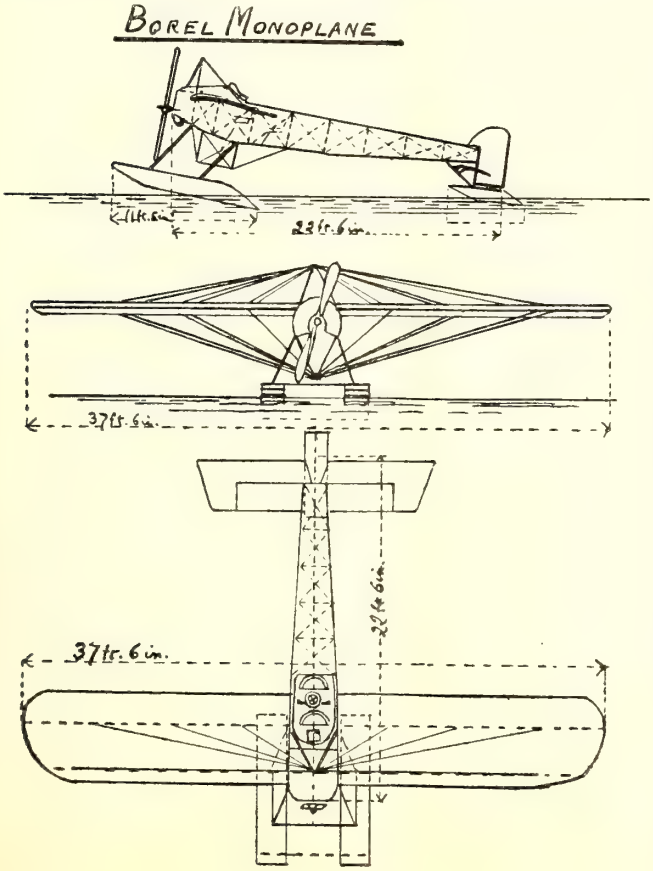
"The corrected time is rather long owing to the fact that they stayed too long at Jersey. Presuming (which is not quite right) that the Nieuport does 80, Molla did pretty good time in the second trip. Labouret lost himself in a blinding rainstorm for 10 mins., which accounts for his worse time. The Astra flew at 2,000 ft., the rest at 200 ft. about. The Astra looked every bit as fast as the Nieuport.

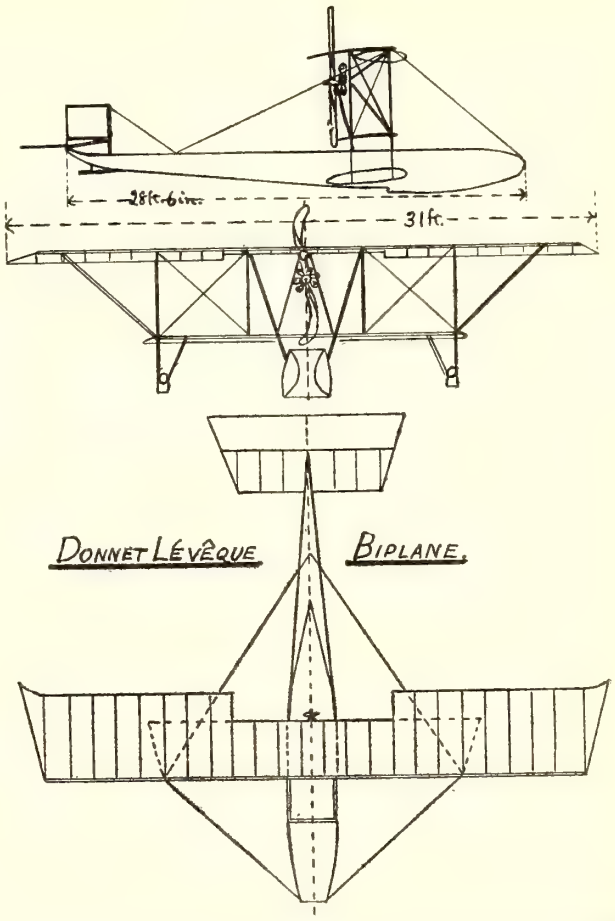
"Taking the machines separately, the R.E.P. lifted out of the water about the best of the lot. She had a Fabre float, which was sprung to the fuselage (as on Vickers). There was little give, but there was give in every direction to a certain extent.

"The Train was only out once, but appeared to have an efficient though complicated float. The Nieuport appeared slovenly in getting up and landing. The Borel only flew once, but got up with an engine that would not do a circuit. It had the popular catamaran type of floats.

"Beaumont I never saw flying, and I don't think his Donnet-Lévêque appeals to me at all. The passenger is absolutely boxed in, among other bad faults. The Sanchez Besa was a modern Voisin (not Canard) type, with floats of the H. Farman type. It flew fast and carried passengers well, and Benoist is an excellent pilot, and was the only man I saw judge his distance perfectly in landing. The Deperdussin was hopelessly spoilt by its floats; it had to get up with its tail right down.

"The Astra was the finest machine at the meeting. It always flew, and flew well. It is very big, very fast, and very strong. The Maurice Farman had to have its engine tuned well to fly and was rather disappointing, though, of course, Renaux's spirals and general flying were superb. The Curtiss was rotten, capsized, soused its pilot in water, and I never saw it more than 30 ft. up. It was generally splashing along in the water. On the whole, it struck me that there is tons to do in perfecting floats."





The diagrammatic sketches published herewith are based on those of *L'Aéro*, and show clearly the general arrangements adopted by the R.E.P., Borel and Donnet-Lévêque firms.

The Borel monoplane is practically a large version of their well-known military machine, which may be said in a general way to be of the Blériot type. As a flier overland it has proved itself very fast and efficient. Its chief peculiarity is the balanced elevator, which passes round three sides of the tail plane, thus combining the old Blériot "aileron" elevator with the long rear flap. The floats are simply plain Catamarans, designed to give as little head resistance as possible, but not acting as hydroplanes. The rear float swivels with the rudder, and so steers on the water. The chief dimensions are:—

Span—37 ft. 6 in. Length—22 ft. 6 in.

Height—9 ft. Surface—195 sq. ft.

Tractor—8 ft. 6 in. diameter by 4 ft. 3 in. pitch, with 80-h.p. Gnôme.

Main floats—1 ft. 7 in. wide by 11 ft. 5 in. long.

The Donnet-Lévêque biplane is generally recognised as the first practical step towards producing a real flying boat, and though at present somewhat crude it is generally a good flier. The float, which is a true hydroplane, is the body of the machine itself, and in it the pilot and passenger sit. The engine and tanks are placed high above them so as to get the centre of gravity right, but, being behind, it is evident that in case of a nose dive the crew would be underneath all the wires, and so forth, and would have to be expert divers to avoid being drowned. The general idea is right, but the execution is wrong. The dimensions are:—

Span—31 ft. (upper plane). Length over float—28 ft. 6 in. Surface—182 sq. ft. Motor—70-h.p. Gnôme.

A New School at Hendon.

Yet another school is shortly to be opened at Hendon, whither Mr. Blackburn is transferring his machines from Filey. He hopes to have at least three machines there next week.

The Second August Meeting.

Those who were wise enough to go to Hendon last Saturday were well rewarded, for there was some of the finest flying ever seen in this country. Of course, "everyone is out of town," we know, and all the "star turns" are, like the stage folk, working the seaside resorts and the provinces generally, but all the same there was a very good crowd of some 10,000 people there, and Hendon has a wonderful way of discovering new stars.

Mr. Sabelli came over from Brooklands on the little Hanriot, and although hopelessly handicapped out of the cross-country race, flew a splendid course, and later came within a fifth of a second of getting into the final of the Speed Handicap. M. Desoutter gave some fine exhibitions, and though compelled to come down at the start of the cross-country race, deadheated with Signor Nardini for second place in the Speed Handicap after just beating Sabelli in his heat. Mr. Lewis Turner, on the rejuvenated Howard Wright, was flying better and faster than ever, and won both races handsomely, having been handicapped on the speed before she was rebuilt.

Mr. Valentine returned to his old love, flew the old Deperdussin in the cross-country handicap, but missed the third pylon at the start and was disqualified. He saw himself flagged at the fourth pylon, but, like a good sportsman, he flew the first lap of the course to Elstree and back, just to make a good show. If he had not been ruled out he would have made a close finish with Mr. Noel, who was flying the new 80-h.p. Henry Farman, though neither of them could possibly have caught Turner.

Lieut. Spencer Grey, R.N., came up to try his new 50-h.p. Blackburn, but the propeller was decidedly under-pitched, so the machine would barely lift. However, he was induced to fly in the speed handicap, just for the fun of the thing, but of course was out of it in pace, though he showed great skill in handling the machine, especially when he got Nardini's wash at the south corner.

Mr. Blackburn got the old Grahame-White biplane round satisfactorily in the Speed Handicap, and in the second heat of the same race Mr. Valentine flew the first British Deperdussin, the long-tailed two-seater formerly at Brooklands, but she was unable to win from her handicap mark.

The results of the races were:—Cross-country (Elstree and back, twice): Turner 1, Noel 2, Sabelli 3. Speed Handicap—First heat: Turner 1, Desoutter 2, Sabelli 3; only a fifth of a second between second and third. Second Heat: Nardini 1, Blackburn 2, Valentine 3. Final: Turner 1, Desoutter and Nardini dead-heat for second. A most exciting race.

Afterwards Desoutter and Nardini went up for the altitude prize, practically in the dark, the former getting to just over 3,000 feet. Mr. Gates also took up the 80-h.p. Farman, and made a very fine flight to what looked like fully 3,000 feet, though not, of course, competing.

Things are likely to be very lively at Hendon for the rest of the year, for, in addition to all those who flew on Saturday, there will be several new Deperdussins, flown by Lieut. Porte, R.N., Mr. Gordon Bell, and others; two or more Bréguets, one of which will be flown by Mr. Moorhouse; Mr. Ewen will have his Caudron biplane out again, and I hear he has just arranged for Mr. Pickles, a particularly clever Australian pilot, to fly his Caudron monoplane, as well as the biplanes; Mr. Astley will be flying his 70-h.p. Blériot, and possibly a R.E.P. M. Verrier will have a new Maurice Farman in a week or so, to replace the old one bought by the Army, and several British Farmans are nearly built. Mr. Grahame-White has a new monoplane built to the designs of Mr. Rowland Ding, just finished, and very promising it looks; also he has a 120-h.p. biplane coming through, for which Mr. Barber is largely responsible, in conjunction with Mr. J. D. North, who will be remembered as heading the lists in a couple of little examination papers set in The Aeroplane last year, and is now justifying the ability he then showed.

Several very important events are on the programme, including a special day when competitions will be confined to naval and military officers, provided, of course, that permission can be obtained for officers on the active list to compete, and there seems no valid reason why officers should not fly in public as well as row, run, ride, and play football. Altogether anyone who wants to see really good flying by first-class pilots, on the greatest possible variety of thoroughly up-to-date machines, can be sure of getting all they want at the London Aerodrome.

On Sunday the flying began early in the afternoon. M. Nardini, on his Deperdussin monoplane, M. Desoutter on the "G. B." Blériot, and Mr. Lewis Turner on the Howard-Wright biplane were all in the air before four o'clock. At that hour Mr. Sabelli left for Brooklands on the Hanriot monoplane. He arrived at that place twenty minutes later.

Shortly after six Mrs. Stocks made a long flight on the 35-h.p. Anzani Blériot. One feels that had this lady a more powerful machine she would be the better able to make men jealous of her prowess in the air. She flies the low-powered monoplane as well as is possible, and better than most of those whose painful duty it is to circulate slowly the aerodrome at low altitudes.

A little later Lieutenant Porte, late R.N., accompanied by Captain Dawes, Royal Flying Corps, as passenger, arrived from Salisbury Plain on a 100-h.p. Anzani-engined Deperdussin monoplane. The distance is roughly eighty miles, and their flying time was one hour five minutes from point to point.

M. Nardini, Mr. Turner, Mr. Noel, M. Desoutter, and Mrs. Stocks continued flying until dusk.—H. T. H.

The Dublin-Belfast Race.

Given really good weather the Dublin-Belfast race ought to be a huge success, for the entries are very much better than anyone could reasonably expect, with no certainty of anything more than a £300 prize to go for. Necessarily a number of the entries will not materialise, but it is pretty sure that there will be enough to make a very fine race.

As the entries stand on the list they are as follow:—M. Henry Jullerot, the well-known Bristol instructor, at present in Spain, is hardly likely to fly. Mr. H. J. D. Astley will certainly fly his 70-h.p. Blériot. His recent flights in Scotland and in Paris are, of course, well known. Mr. W. H. Ewen is not likely to start, but the Caudron machine will be represented by Mr. Obre, who has done some exceedingly good flying in France. Mr. Robert Slack, who may fly his Blériot, is noted for the splendid thousand mile tour he recently completed round England and South of Scotland. "Marc Rivoli," who is an Irish officer in the Royal Engineers, will not be able to start, but Ireland will be well represented by Mr. Desmond Arthur, of Ennis, who will fly a 70-h.p. Bristol. Mr. Corbett-Wilson of Kilkenny, will fly a 50-h.p. Blériot. Lieut. J. C. Porte, R.N., who hails from Bandon, County Cork, will fly a Deperdussin. All the three Irishmen are aviators of the first class.

Mr. Sidney V. Sippe may fly a Hanriot monoplane, and it is not quite certain whether he will fly a 100-h.p. or a 50-h.p. Mr. H. R. Simms hopes to start on an Avro, but it is not certain whether he will have his machine ready in time. Mr. Busteed, the crack Australian flier, is also an uncertain starter. Mr. Hamel is fairly sure to fly his Blériot. Mr. Petre is not quite sure whether he will take the Handley Page over or not. Mr. Valentine is almost a certain starter, but it is not quite arranged what machine he will fly. He may fly his Deperdussin, in which case Mr. Nardini will not start, but if Mr. Valentine gets another mount Mr. Nardini will fly the Deperdussin.

It is to be hoped that competitors will be obliged to fly inland of Dundalk, otherwise a straight line to Belfast will bring them twenty miles out to sea across Dundalk Bay, and right over the roughest part of the Mourne mountains. Also, a direct line will not permit nearly as many people to see the race as if the competitors had to fly overland all the way. Doubtless, however, this question will be settled by the time these notes appear.

Integral Successes.

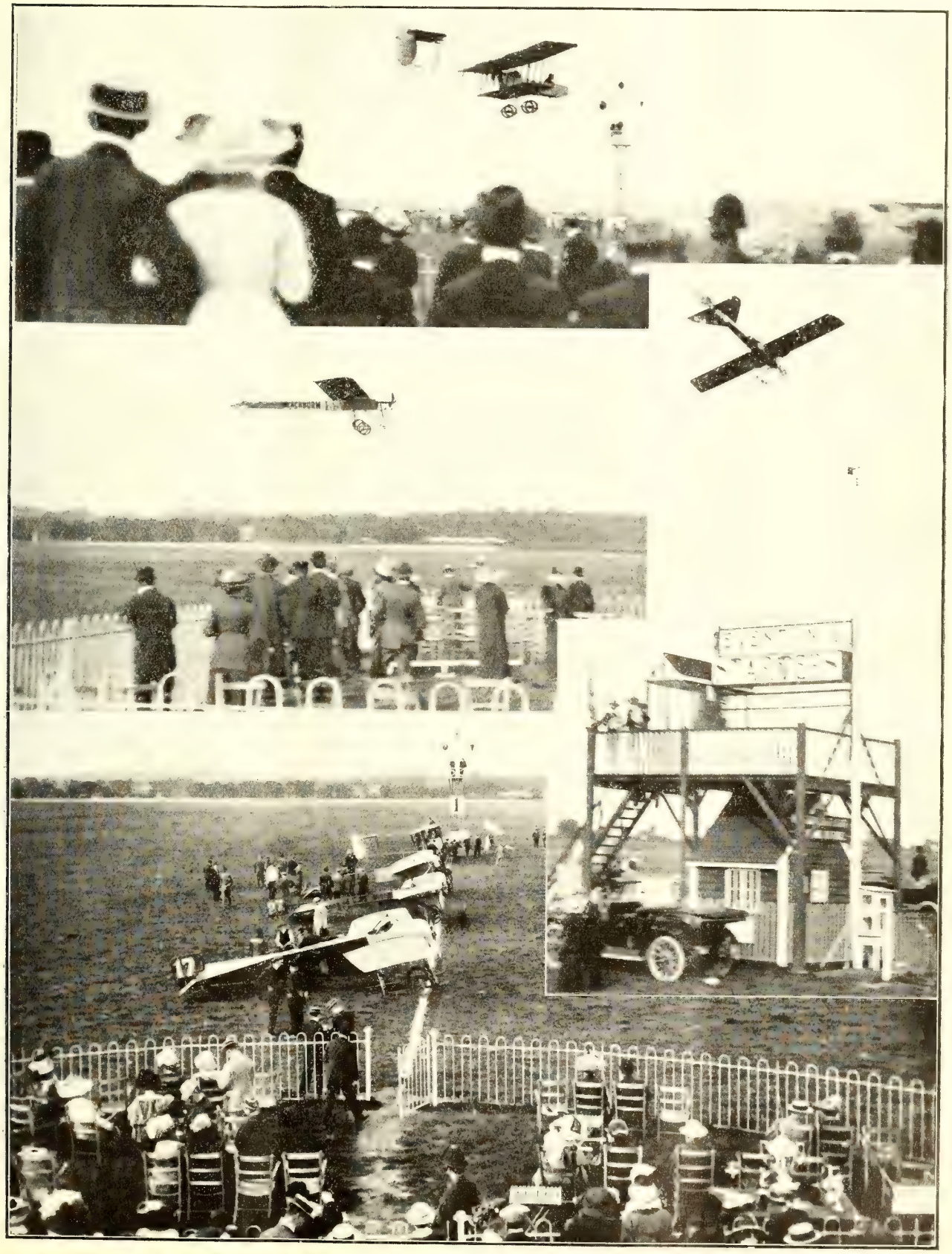
At the military trials, Mr. S. F. Cody wins £5,000, beating the most notable aeroplane constructors in the flying world. Mr. Cody's machine was all his own work except the propeller, which was made by the Intégral Propeller Company, Limited (L. Chauvière), 307, Euston Road, N.W.

The second prize of £2,000 was won by the French Deperdussin Co., also with an "Intégral" propeller, this having been made in the workshops at 52, Rue Servan, Paris.

A Deserved Recognition.

It is now known that the Admiralty has ordered a 100-h.p. Gnôme-Avro hydro-biplane from A. V. Roe and Co. This will be of the same type as the machines already supplied to the War Office, except that it will have floats. The wheels and floats will be either interchangeable, or used together, so that the machine can start off land, alight on water, and return to land. It is well to remember that the first biplane to get off water in this country was the Avro with which Commander Schwann, R.N., experimented at Barrow-in-Furness, and that this machine was afterwards flown very successfully by Mr. Sippe.

Some Novelties at Hendon.



Above.—The new Henry Farman biplane. On left.—The new Blackburn monoplane. On right.—Signor Nardini on his Deperdussin over the Judges' Box. Below.—In order, Sabelli's Hanriot; Nardini's Deperdussin; Desoutter's Blériot; and Noel's Farman.

The Week's Work.

MONDAY, August 26th.

Brooklands.—At Sopwith School, early, Mr. Perry on Farman with Major Cameron and Mr. Lane for instruction.

At Vickers School, Mr. Geere and Capt. Stott on Vickers No. 3.

Leamington.—M. Salmet on Blériot started for Burton, but was blown down at Bradwell, ten miles from the start.

Windermere.—Arranging evidence and collecting witnesses for Government inquiry.

TUESDAY, August 27th.

R.F.C. Central School.—In morning, Capt. Fulton, R.F.A., out on Avro *405* and then on *404*. Ten flights altogether, three each with Capt. Alston and Lieut. Risk, R.M.L.I., and twice each with Major Higgins and Lieut. Abercromby. Capt. Broke-Smith on Bristol *408* three flights with Asst.-Paymaster Trewin, R.N., for tuition and one alone. Capt. Salmond three and Capt. Becke two flights on same machine. Capt. Gerrard, R.M.L.I., on Short *401* three flights, two with Lieut. Courtney, R.M.L.I., and one with Lieut. Lushington, R.M.L.I. Lieuts. Winfield-Smith, Hubbard and Anderson each one solo, and Lieut. Lushington taxi-ing, all on same machine. Lieut. Longmore, R.N., on Short *402* alone and then Major Trenchard, Lieut. Cholmondeley and Lieut. Waldron each twice, and Lieut. Young once on same machine.

In evening Lt.-Col. Cook, R.G.A., on Avro *404*, started out for superior brevêt flight. Broken petrol pipe brought him down at Mortimer, where he stayed the night. Lieuts. Winfield-Smith, Henderson and Hubbard each once on Short *401*. Capt. Fulton on Short *402* three flights, one each with Lieut. Risk, Master Mechanic O'Connor and Lieut. Shepherd. M.-M. O'Connor, Lieuts. Shepherd and Young and Major Trenchard each once on same machine.

Capt. Fulton also on Avro *405* two flights, with Lieuts. Risk and Abercromby.

R.F.C., Farnborough.—Early, Lieut. Longcroft on *B E 1*, Lieut. Mackworth on *B E 5* taking passenger and flying at a good height. Capt. Raleigh on 100-h.p. Bréguet, Lieut. Carfrae on Bréguet *B 3*, Major Moss on Henry Farman, Capt. Darbyshire and Capt. Webb-Bowen each on *B E 5*. Airship *Gamma* several flights. About 11.30 a.m. *Gamma* came out again and did half hour's flight in very gusty wind. In evening all out again, also Capt. Reynolds on Maurice Farman, and Lieut. Barrington Kennett on *B E 3*. Mr. Raynham on new Flanders monoplane, Capt. Gerrard on Nieuport, Mr. de Havilland on Deperdussin. Early in evening Mr. de Havilland returned from Salisbury on *B E 2* with Major Brooke-Popham as passenger. Lieut.-Col. Cook on Avro flying for Superior Brevêt had to descend at Mortimer owing to broken petrol pipe.

Hendon.—At Grahame-White School, 7 p.m., under superintendence of Mr. Lewis Turner, Lieuts. Allen and Stopford doing good straights on Sommer biplane. Messrs. Hoelscher and Fuller straights on No. 7 biplane, and Mr. Kinhardt and Lieut. Small rolling on same. Mr. Roupell doing straights on 35-h.p. Blériot.

At L. Bleriot's in evening Messrs. Hall, Sacchi and Reilly practising. Mr. Hall and Mr. Sacchi doing circuits. Mr. Reilly rolling on *L B 1*. Mr. H. J. D. Astley was out in afternoon trying Miss Trehawke-Davies' 70-h.p. tandem two-seater prior to cross-Channel trip.

At W. H. Ewen School, under instruction of M. Dubois, Messrs. Conran, Lawford, the James Bros., and Lieuts. Bayly and McMullen did good straights and flying on No. 1 monoplane. After two test flights on 35 Caudron by Mr. Ewen, Messrs. Sutton and J. H. James made first solo flights on same machine. Mr. Ewen then took up Messrs. Sutton and the James Bros. for further air instruction.

At Deperdussin School, evening, Mr. Brock and Cadet Robinson doing straight flights on brevêt machine. Lieuts. Hawker and Tucker, Messrs. Andrews, Spratt, Phelps, and Durand all rolling on Taxi No. 2. Mr. Gill two circuits on racer.

Brooklands.—At Sopwith School, early, Mr. Hedley first out on Farman alone, then taking Major Cameron for instruction.

At Vickers School, early, Capt. Stott and Mr. Geere out on No. 3. Finally Capt. Stott damaged wheel base landing and stood machine on nose.

At Bristol School, Mr. Hotchkiss on biplane. Then with Lt. McClean. Mr. Merriam on Anzani monoplane. Mr. Hotchkiss with Capt. Miller. Mr. Payze, Lieut. Prendagast. Lieut. Penn-Gaskell, Lieut. Hanlan. Mr. Merriam up with Lieuts. Ali, Hanlan, Mr. Hall, Capt. Price. Captain MacDonell and Lieut. Carmichael. Mr. Gould went for his brevêt very well. Lieut. Playfair for first half of brevêt. Mr. Summerfield, Mr. Pickles, Capt. Miller, Lieut. Wanklyn, Mr. Cheesman. Lieut. Carmichael, Capt. Boger, Lieut. Prendergast, Lieut. Hope, Capt. MacDonell, alone on biplanes. Mr. Barnwell, Mr. Bettington, Prince Cantacuzène and Lieut. Wyness Stuart flying Anzani monoplane.

Burton-on-Trent.—M. Salmet on Blériot arrived from Berkswell, near Coventry.

Buxton.—Mr. Hamel arrived from Northwich *via* Macclesfield, crossing the bad hills of the Peak district, reaching 2,500 ft. on the way.

Eastchurch.—Commander Samson, R.N., flew 100-h.p. Short tractor waterplane from Harwich to Sheerness, landing about 1.30 p.m. In evening Mr. Alec Ogilvie out on N.E.C.-Wright, and later taking Mr. Fowler as passenger. Lieut. Malone, R.N., on 100-h.p. triple tractor, Capt. Gordon, R.M.L.I., on 70-h.p. Farman, Lieut. Gregory, R.N., on Etrich, Eng.-Lieut. Briggs, R.N., on school biplane, all out until dark.

Liverpool (Waterloo).—Mr. Melly brought out two-seater Blériot in strong breeze and flew five miles northwards by himself, passing over Altcar Rifle Range and having reached 1,000 ft. circled inland round Ince Woods, and returned.

New Brighton.—M. Fischer on Farman hydro-aeroplane doing exhibition flights round New Brighton, M. Hubert also flying.

Southend.—Excellent flights by Mr. Grahame-White, Mr. Noel, and Mr. Travers on Farman hydro-aeroplane, Mr. Noel and Mr. Travers taking up several passengers, and Mr. Grahame-White taking his wife across to the Isle of Grain and back.

Windermere.—The inquiry. *Water Hen* made one flight towards evening to test new propeller.

WEDNESDAY, August 28th.

R.F.C. Central School.—Lieut. Longmore, R.N., on Short *402* with Lieut. Shepherd. Lieut. Shepherd for brevêt tests. Master Mechanic O'Connor also going for brevêt, but engine giving out forced him to land. Capt. Fulton, R.F.A., on Avro *405* three flights. One each with Major Higgins, Capt. Alston and Lieut. Risk. Capt. Gerrard, R.M.L.I., on Short *401*, three flights, one each with Lieuts. Courtney and Lushington and Asst.-Paymr. Lidderdale. Lieuts. Hubbard, Winfield-Smith and Henderson each once on same machine. Capt. Gerrard brought over Nieuport monoplane from Farnborough.

R.F.C., Farnborough.—Early, airship *Gamma* several long flights, Major Maitland in charge. Capt. Reynolds 20 mins. on Maurice Farman with passenger at 2,000 ft. Capt. Hamilton on Deperdussin several flights. Lieut. Longcroft on *B E 1*. Capt. Darbyshire, Capt. Webb-Bowen, and Lieut. Mackworth, each flights on *B E 5*, Lieut. Barrington-Kennett on *B E 3*. Capt. Raleigh and Lieut. Carfrae both several flights on Bréguets. Major Burke on *B E 1*. Capt. Webb-Bowen flights on Bréguet *B 3*. In evening Capt. Raleigh on 100-h.p. Bréguet 1 hour 35 minutes' flight with Lieut. Longcroft as passenger, height 5,000 ft. Lieut. Carfrae short flight on Bréguet with two mechanics as passengers. Major Brooke-Popham several flights on *B E 3*.

Hendon.—At Grahame-White School, 8.50 a.m., under Mr. Turner, Mr. Fuller and Lieut. Stopford doing straights on No. 7. Lieut. Small and Messrs. Marrick and Kinhardt roll-on same. Mr. Roupell good straight flights on 35-h.p. Blériot.

At L. Bleriot's, Miss Trehawke-Davies and Mr. Astley early at aerodrome waiting for morning mist to rise. As soon as No. 1 pylon was visible at 100 yards they made a fine start, machine quickly being lost to sight. Later, Mr. Hall went up on *L B 4* for certificate and did first half in good style, including preliminary jaunt over the surrounding countryside. Rising wind, combined with overheating engine, due to partially choked oil-pipe, forced a postponement.

At W. H. Ewen School pupils hard at work, when wind dropped at 7.30 a.m., when Messrs. H. James, Conran, and Lieuts. Bayly and McMullen had some good practice. After breakfast pupils were again out, and, in addition to above, Messrs. Gist and Warren were making several nice flights on No. 2 monoplane. Following several circuits on 35 Caudron by Mr. Ewen, Messrs. Sutton and J. H. James did good solo work. Mr. Ewen then took some of pupils for passenger flights.

At Deperdussin School, Mr. Brock one figure of 8 on brevêt machine, and then took his brevêt. Cadet Robinson straights on brevêt machine. Lieuts. Tucker and Hawker, Messrs. Andrews, Spratt, Phelps, and Durand all out on Taxi No. 2.

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The fine weather at mid-day evidently tempted quite a large crowd of people to Hendon on Wednesday of last week, when a special display of flying was made for the benefit of readers of *Tit Bits*, which enterprising paper had presented a number of its readers with free tickets for passenger flights as prizes in one of its competitions.

During the early part of the afternoon the indefatigable Mr. Lewis Turner was hard at work taking up passenger after passenger, the commissionaire with the megaphone announcing to the crowd at intervals of a few minutes that "Mr. Lew-is-Tur-ner-is-now-mak-ing-a-flight-on-a - Gra-hame - White bi-plane-ac-com-pan-ied-by-a-*Tit-Bits*-prize-win-ner," with the regularity of clock-work. Thereafter there was a little match between Mr. Lewis Turner and Mr. Nardini on the Deperdussin, which Mr. Nardini won handsomely. Then there was another race between Mr. Turner and Mr. Blackburn on two of the Grahame-White box-kites, Mr. Nardini on the Deperdussin and Mr. Desoutter on the ancient Gordon-Bennett Blériot. By the way, it is quite time this machine was taken to pieces and thoroughly overhauled. It has done an enormous amount of flying lately, including a number of very rough landings, and it has not had the lower *planche* armoured yet, as is now done in all the modern Blériots, owing to the danger of the wood cracking in a rough landing and breaking in the air afterwards. It would be a horrible break in Hendon's long run of good luck and freedom from accidents if young Desoutter were to be smashed up in the middle of one of his fine exhibition flights, simply through lack of time to put a few inches of steel plate along a piece of wood.

During the afternoon Mr. Richard Gates on the new Henry Farman made a very fine flight with Captain Tyrer as passenger, but in landing at the bad corner where Mr. Hubert, Mr. Ewen, Mr. Prensiell, and various others had their smashes, he caught a gust which turned the machine right over on to her left wing tip, and it looked as if there was going to be one of the usual catherine-wheel smashes. Fortunately, Mr. Gates cleverly pulled the machine straight, and landed well.

After the prolonged drought of the morning there was a little rain, which seemed to dim the brilliance of the proceedings, especially as it was accompanied by a cold and rather gusty wind, but the readers of *Tit Bits* certainly had some extremely good flying for the trouble of visiting Hendon.

Brooklands.—At Sopwith School, early, Mr. Hedley with Major Cameron.

Late in evening Mr. Sabelli on Hanriot arrived from Salisbury, after an excellent journey, finding some slight difficulty in landing from a height in the gloom.

At Bristol School, Mr. Merriam on biplane. Then with Lieut. Hanlan, Capt. Price, Lieuts. Glanville, Carmichael, Penn-Gaskell, and Capt. MacDonell. Mr. Hotchkiss with Lieut. McClean, Mr. Payze, Lieut. Penn-Gaskell, Lieut. Hanlan and Lieut. McClean again. Lieut. Playfair took second half of brevêt. Lieut. Wanklyn also for brevêt, which he did all right, making a third flight to pass for height. Capt. Miller, Mr. Summerfield, Mr. "Darracq," Mr. Cheesman, Captain MacDonell, Capt. Boger, Lieut. Hope, Lieut. Carmichael, Lieut. Penn-Gaskell, Lieut. Glanville alone on biplanes. Mr. Barnwell, Mr. Bettington, Prince Cantacuzène, and Lieut. Wyness Stuart on monoplanes. In evening Mr. Hotchkiss testing side by side two-seater monoplane. Wind bad, but machine flew well, and after doing two straights picked up Mechanic Willis and flew some more.

Mr. Merriam on biplane took up Turkish Lieuts. Fazil, Ali, Sabre Said, Abdullah, and Safoet. Then with Lieut. Pretyman, Messrs. Hall, Payze, and Capt. Styles. Lieut. Wyness Stuart out on Anzani monoplane.

Burton-on-Trent.—M. Salmet on Blériot doing usual exhibitions before large crowds, and after about quarter of an hour's flying flew off to Chester, passing over Uttoxeter.

Chester.—M. Salmet arrived from Burton, covering 60 miles in about 50 minutes in rain and general bad weather.

Clacton-on-Sea.—Mr. and Mrs. Grahame-White arrived on Henry Farman hydro-aeroplane, Mr. Grahame-White afterwards giving very pretty exhibition. Mr. Noel then took machine over and flew to Walton-on-the-Naze, where he gave exhibition and returned to Clacton, Mr. Grahame-White afterwards returning to Clacton on machine with his wife.

Eastchurch.—Mr. Ogilvie out on N.E.C.-Wright in morning. In evening Commander Samson, R.N., on Short monoplane, Lieut. Gregory, R.N., on Etrich, Lieut. Malone, R.N., on 100-h.p. triple tractor, Capt. Gordon, R.M.L.I., on 70-h.p. Farman, Eng.-Lieut. Briggs, R.N., on school biplane. Again all out till dark. Mr. Guy Fowler did first half of brevêt test on N.E.C.-Wright, but it was too dark to finish.

Southend.—Exhibition flights by Mr. Noel and Mr. Grahame-White on Henry Farman hydro-aeroplane. During day Mr. Grahame-White, with Mrs. Grahame-White as passenger, flew to Clacton and back. Mr. Travers also gave four exhibition flights, carrying passenger each time. While Mr. Noel was flying control wire broke, but he alighted without trouble.

Windermere.—*Water Hen* out for further test. Result better, but on trying with passenger could only do straights. *Sea Bird*, after good trial flight, tried to take Mr. Wakefield as first passenger, but could not get up more than 20 or 30 ft., and had to be towed in.

THURSDAY, August 29th.

R.F.C. Central School.—Capt. Fulton, R.F.A., two solos on Avro *405*. Lieuts. Longmore, R.N., Cholmondeley and Martyn each once on Maurice Farman *403*. Lieut. Longmore one flight with Lieut. Waldron on Short *404*. Lieut. Hartree and Capt. Broke-Smith each once on Bristol *408*. Capt. Gerrard, R.M.L.I., two flights with Lieuts. Courtney and Lushington on Short *401*.

R.F.C., Farnborough.—Capt. Hamilton on Deperdussin two circuits and left for Salisbury; Major Brooke-Popham left for Salisbury on *B E 3*. In evening Major Burke several flights on *B E 1*, also Lieut. Longcroft on same machine.

Hendon.—At W. H. Ewen School pupils unable to do solo practice on account of the wind, but in evening Mr. Ewen had several of pupils out for air instruction on 35 two-seater Caudron. Mr. Richard T. Gates also made his first flight in a Caudron.

Brooklands.—At Avro School, in evening, Mr. Simms out for 10 mins. in nasty wind on old Green school 'bus, when other machines were confined to straights.

At Bristol School, 6.45 p.m., Mr. Hotchkiss, on two-seater (side-by-side) monoplane. Then took up Lieut. Wyness Stuart, and afterwards Mechanic Willis. Mr. Merriam out doing straights on Anzani monoplane.

Aberdeen.—Mr. B. C. Hucks on Blériot made several successful flights before some tens of thousands of people.

Burnham-on-Crouch.—Mr. and Mrs. Grahame-White arrived at 3.30 a.m., after an exciting time. Previous evening they had started from Clacton, but were brought down eight miles from Burnham owing to engine trouble, were towed to shore by yacht, where, in endeavouring to start up again, a back fire set light to the carburetter. This was extinguished, and there was further wait of two hours before yacht, which had gone aground on mud-bank, could be got off. Machine was then towed to Burnham late at night, and after endeavouring to get necessary tools machine was finally towed into Burnham harbour in early morning.

Liverpool (Waterloo).—Notwithstanding very strong wind, Mr. Melly again had out two-seater, and, flying without passenger, made for Audlem, where Flower Show was being held, starting at 11.30. Although wind at start was north-west, after crossing south of Mersey, it veered so much to south that actual distance covered of 54 miles took 1 hr. 20 mins. Hard tussle with wind all way, and being equally bad all afternoon no exhibition flight was attempted. Return journey, due at 6 p.m. in evening, was postponed till following morning.

New Brighton.—Exciting adventure of Miss Murry on the Farman hydro-aeroplane. The passenger had just taken seat and was waiting for pilot, when machine floated away from assistants, and was blown out into the Mersey, where it was overturned by gust, Miss Murry fortunately having sense to climb along planes as machine went under water. Motor mechanic named Hatchell swam to her rescue fully clothed, and supported her until taken off by boat. Both recovered from their plight very quickly. Just about same time M. Salmet arrived, en route from Chester to Preston, landed on beach, gave an exhibition flight and went on.

Preston.—M. Salmet arrived on Blériot from Chester.

Sheffield.—Mr. Hamel arrived from Buxton on Blériot.

FRIDAY, August 30th.

R.F.C. Central School.—Capt. Fulton, R.F.A., on Avro *105* five flights, two solos and once each with Lieuts. Risk and Abercromby, and then taking Capt. Alston on to straights, Capt. Alston doing six straights and two circuits. Then Lieut. Abercromby on straights doing two straights. Captain Fulton once with A. M. Higginbottom. Lieut. Longmore, R.N., on Maurice Farman *403* three flights, once each with Major Trenchard and Lieuts. Martyn and Shepherd. Lieuts. Martyn and Shepherd each once on same machine. Master Mechanic O'Connor on Short *402* finished brevêt test and then one solo. Major Trenchard and Lieuts. Waldron each two solos and Lieuts. Cholmondeley, Young and Shepherd each one solo. All these on

Short biplane *402*. Capt. Broke-Smith alone and once with Asst.-Paymr. Trewin, R.N., Capts, Becke and Salmond, and Lieuts. Smith-Barry and Hartree each once on Bristol *408*. Capt. Gerrard, R.M.L.I., on Short *401* two flights, once each with Lieuts. Lushington and Courtney and Lieut. Wingfield-Smith one solo.

In evening, Lieut. Longmore on M. Farman *403* one solo and once with Lieut. Waldron. Lieut. Martyn one solo on same machine. Lieut. Abercromby alone on Avro *405*. Lieut. Longmore on Short *402* once. Major Trenchard and Lieuts. Waldron and Cholmondeley each once on same machine.

R.F.C., Farnborough.—Capt. Raleigh on 100-h.p. Bréguet several long flights. Major Burke with Lieut. James as passenger, left for Thetford, but had to descend at Hatfield owing to wire breaking. Lieut. Porte, R.N., out on new British Deperdussin, passing War Office tests, flying well in the hour flight. In evening weather very cloudy and wind gusty. Capt. Raleigh did some fine flying on 100-h.p. Bréguet. Mr. de Havilland on *B E 2* several flights with passengers. At 9.30 p.m. Airship *Gamma* out and did two half-hour flights.

Hendon.—At W. H. Ewen School pupils out at 5 a.m., and all making splendid headway, with Lieuts. Bayly and McMullen and Mr. H. James on Monoplane No. 1 and Messrs. Baumann and J. H. James on 35-h.p. Caudron. Mr. Ewen out making short flight on Caudron biplane, after which wind putting a stop to School solo work, he took above pupils up for further air experience.

At Deperdussin School, in morning, Lieuts. Tucker and Hawker, Capt. MacDonell, and Messrs. Andrews, Spratt, and Phelps all out on Taxi No. 2. Mr. Spratt got on to bad ground, and broke a skid and strut and propeller. Mr. Gill four circuits on racer.

Brooklands.—At Sopwith School, Mr. Hedley, as usual, first out in morning alone, followed by Mr. Ellington, who terminated by an encounter with a fence. No serious damage, fortunately.

At Avro School, in evening, Mr. Simms again out in wind for 10 mins. flying well on ancient Green Avro.

At Bristol School, 5 a.m., Mr. Merriam, with Turkish Lieutenants Sabre Said, Fazil, and Abdullah. Mr. Hotchkiss with Lieuts. McClean, Hanlan, Carmichael, Glanville, and Captain Boger. Mr. Merriam with Lieut. Pretyman, Capt. Price and Lieut. Penn-Gaskell. Mr. Cheesman, Capt. Miller, Capt. Boger, Lieut. Penn-Gaskell, and Lieut. Hope, all flying alone straights. Mr. Arthur on Anzani monoplane, followed by Mr. Bettington and Lieut. Wyness Stuart. 6.30 p.m.—Mr. Hotchkiss with Lieut. McClean, Lieut. Hanlan, Lieut. Carmichael, Captain Styles and "Captain" Penfold, the well-known Australian aeronaut, his first trip being quite exciting, for a very gusty wind of 15 m.p.h. sprang up suddenly, preventing further flying. Mr. Merriam with Mr. Payze, Lieuts. Sabre, Abdullah, Safet, Pretyman, Glanville, Capt. Price, and Lieut. Loultcheff. Capt. Miller, Lieut. Penn-Gaskell, Lieut. Hope, Mr. Cheesman, Mr. Summerfield, Capt. MacDonell, and Mr. "Darracq" all flying alone. Lieut. Arthur on biplane. Mr. Bettington flying well on Anzani monoplane.

Eastchurch.—Commander Samson, R.N., took out school biplane 38 (now transformed to Farman type) and weighing considerably less than before, and soon showed the vast improvement that had been made. On returning, Commander Samson took up two passengers and climbed 1,000 ft. in a trifle over 8 mins. Lieut. Parke, R.N., later on took same machine with one passenger to 3,000 ft. Lieut. Malone, R.N., out on 100-h.p. triple tractor, Capt. Gordon, R.M.L.I., on Farman, giving passenger flights; Lieut. Spencer Grey, R.N., took two-seater Deperdussin for several circuits preparatory for flying at Cambridge during the manœuvres next week. Mr. Guy Fowler completed second half of brevêt test on the Mr. Ogilvie's N.E.C.-Wright machine, flying between 600 and 700 ft. Mr. Ogilvie afterwards took up Lieut. Seddon.

Liverpool (Waterloo).—Mr. Melly made early start from Audlem in light breeze, with Mr. Birch as passenger, and after circling once round, headed for Beeston Castle, but, failing to get machine to climb more than 150 ft., decided to land passenger a couple of miles from Nantwich, engine missing badly. However, fresh start was made, and he made direct line across Wirral to Ellesmere Port to south side of Mersey. Wind had then increased to about 35 miles an hour, and progress was exceedingly slow, and as it was undesirable to fly ten miles down the Mersey he circled to south of Birkenhead and Bidston, passing over New Brighton, where wind had attained such velocity that only by planing down was a sufficient progress made to reach Waterloo Beach on north side of the Mersey. The distance actually covered was 42½ miles, in 1 hr. 37 mins., after landing Birch. A very plucky performance on the old two-seater Blériot.

Southend.—Mr. Travers returned from Burnham on Mr. Grahame-White's Henry Farman.

Windermere.—Windy until evening, when *Water Hen* out again trying new propeller.

SATURDAY, August 31st.

R.F.C. Central School.—Lieut. Longmore, R.N., with Major Trenchard one flight and Lieut. Martyn alone on M. Farman *403*. Capt. Fulton on Avro *405* two flights with Major Higgins and Lieut. Abercromby alone on this machine. Capt. Fulton with Lieut. Risk one flight on Short *402*. In evening, Capt. Gerrard, Lieuts. Young and Waldron once each on Short *401*. Capt. Gerrard twice on Nieuport monoplane.

R.F.C., Farnborough.—About 3 a.m. airship *Gamma* out. Capt. Raleigh on 100-h.p. Bréguet several flights, Lieut. Carfrae on 100-h.p. Bréguet 70 min. flight with passenger at 4,000 ft., Capt. Webb-Bowen and Capt. Darbyshire each on *B E 5*. In evening Capt. Webb-Bowen on *B E 5*, Capt. Raleigh and Lieut. Carfrae both on 100-h.p. Bréguets taking passengers at 9.30 p.m. Airship *Gamma* several flights.

Hendon.—At Grahame-White School, 5.15 a.m., under Mr. Turner. Lieut. Allen and Capt. Halahan doing straights on No. 7. Messrs. Fuller and Hoelscher straights and Lieut. Small and Mr. Marrick rolling. Capt. Halahan, in trying to rise too quickly, pancaked and smashed chassis struts. Mr. Roupell good straight flights and excellent landings on 35-h.p. Blériot.

At L. Bleriot's a lot of practice by pupils. Mr. Sacchi and Mr. Welburn straights, and Mr. Reilly rolling. Mr. L. S. Metford took out *No. 4* to test new elevator, and going up to about 300 ft. found 25 m.p.h. wind, so decided to come down after a circuit or so, finding himself too busy with only a 30-h.p. motor.

At W. H. Ewen School pupils out at 4.30 a.m., when M. Dubois had Lieuts. Bayly and McMullen and Messrs. Conran and H. James doing progressive work on No. 1 monoplane. A big morning's work was put in, and all pupils advanced confidently into flying stage. Event of morning, however, was M. Baumann completing tests for brevêt, which he did on 35-h.p. two-seater Caudron biplane. He flew at 200 ft., and banked and landed machine in quite expert style. His smartness proves aptitude and at same time shows how easily the Caudron two-seater biplane can be handled. M. Dubois, who has been a favourite instructor, left for France to take up military service in the French Flying Corps.

Brooklands.—At Hanriot's, Mr. Sabelli left for Hendon early on single-seater, arriving in 12 mins. Later, about 1 p.m., Mr. Sippe arrived on 100-h.p. Gnôme military trials' machine from Salisbury, having broken his journey at Basingstoke.

In evening a bomb-dropping and alighting competition was indulged in by the numerous box-kites now present, and was won by Mr. Raynham on Sopwith Farman. Later Mr. Raynham out on A.B.C. engined Avro for trial straights, machine flying well, but requiring slight adjustments to both engine and machine.

At Vickers School, Messrs. Barnwell and Geere and Capt. Stott out on No. 3 and Lieut. Hewlett, R.N., on Vickers Farman for a long flight till dark.

At Bristol School, 5.20 a.m., Mr. Hotchkiss with Lieut. Abdullah, Lieut. Glanville, Lieut. Hanlan, Mr. Merriam with

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Lieut. McClean, Turkish Lieuts. Ali, Safet, Sabre, and Loultcheff. Mr. Hotchkiss with Lieut. Glanville, Mr. "Darracq," Lieut. Hanlan, Lieut. McClean, Capts. Price, Boger, and Styles. Mr. Summerfield, Mr. Cheesman, Lieut. Hope, Capt. Miller, Mr. "Darracq," Lieut. Penn-Gaskell, and Lieut. Carmichael flying alone. Mr. Bettington and Mr. Merriam on Anzani monoplane.

Aberdeen.—Fine flights by Mr. B. C. Hucks on Blériot, circling Aberdeen at 4,300 ft. In evening two illuminated flights, torches being used to enable him to see landing ground.

Barrow-in-Furness.—M. Salmet on Blériot arrived from Preston *via* Ulverston, passing over Heysham and Morecambe Bay.

Eastchurch.—Lieut. Parke, R.N., with passenger, in early morning flew Short 38 biplane to Chatham, returning soon after midday. In evening Commander Samson, R.N., took Farman, with Eng.-Lieut. Briggs, R.N., as passenger, to 4,850 ft. in 21 mins. Capt. Gordon, R.M.L.I., flew same machine several circuits during evening. Private Edmunds, R.M.L.I., gave small demonstration of a "cat catching its own tail" when he started off close to shed on school machine with rudder hard over, and promptly turned completely round and just managed to switch off as machine was entering the shed. He, however, had her turned round and re-started and did several circuits by way of showing that his nerve was still good. Lieut. Spencer Grey, R.N., flew round island on Deperdussin which he is now flying in place of *T* 5, the 70-h.p. tractor. Mr. Jezzi out on own biplane carrying several passengers.

Salisbury.—Complimentary reception to Mr. Cody given by City fathers to celebrate his victory in Military Competition.

Southend.—Messrs. Grahame-White, Travers, and Noel flying on Farman hydro-aeroplanes. Mr. Noel afterwards going to Hendon to fly there. In evening Mr. Travers started to fly to London, landed at Shoeburyness, and took floats off machine, staying there the night.

Windermere.—*Water Hen* going strong, with numerous passengers. *Sea Bird* took up Mr. Gnosspelius, but flew heavily, and again had to be towed home.

SUNDAY, September 1st.

Brooklands.—Great display of box-kiting by a number of Bristols, the Sopwith-Farman, Vickers-Farman, and Spencer school biplanes. Naming no names and making no insinuations, but stating a plain fact, there is going to be a horrible smash soon if some effort is not made to induce some of the old school machines to fly with their tails rather higher than the lower main planes. Happily most pupils do not know enough to feel unhappy, and by good luck and careful piloting nothing serious has happened—yet, the worst being a few chassis carried away.

During afternoon Mr. Sabelli arrived on his Hanriot monoplane from Brooklands, flying very steadily and coming down with a long straight glide at a very steep angle, followed by a beautifully judged straightening out and landing. After tea Mr. Sabelli up again to give exhibition flight, the small crowd present being highly appreciative of the excellent way the machine flew and the way Mr. Sabelli handled it.

Eastchurch.—Mr. Jezzi only out, all other civilians being away.

Salisbury.—Overhead visit by Mr. Cody, scattering souvenir leaflets from machine headed, "Is England Awake?"—question exceedingly apposite when asked by an Irish-American.

The Government Inquiry as to Hydro-aeroplanes on Windermere.

Sir William Byrne, of the Home Office, and Mr. Jenkins, of the Board of Trade, held a public inquiry at Windermere on August 27th. J. T. Bownass, Esq., solicitor, for the District Council; Sir James Scott, for the Yacht Club; George Gatey, Esq., solicitor, and Mr. Warburton, for the Protest Committee; Mr. F. W. Garnett, "for the public"; and Mr. Heelis, solicitor, for certain residents, all gave evidence, and asked for stringent regulations as to speed, areas, hours, etc.

The only definite allegations made against the waterplanes were:—

(1) That babies had been awakened by them.

(2) That a horse might have been frightened one day, but, in fact, was not, as the waterplane turned aside before getting too near.

(3) That a sheep jumped into the lake on seeing one.

As this seemed the most substantial grievance alleged the Commissioners inquired further into it, as follows:—Q.—"The sheep was drowned?"—A.—"Oh, no; it was not."—Q.—"Well, at least seriously endangered, and rescued with difficulty?"—A.—"No. Westmorland sheep are good swimmers."

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REPORT

inm mid air on qan AVRO biplane
fitted with an60Hg Green Engine

MONARCHType-writer is being used

This Is the first time I have used it so the typing is distinctly bad

Started 4-3 p.m.
4-7 800 feet high

Having got our height we are now starting off for the Royal Flying School at Upavon.

The start wsas made from the Competition Sheds at Larkhill, near Salisbury.

On our right isthe Valley of the Avon, p over which we are now passing.Upavonis straight ahead about three or four miles.

The wind is with us.We are now clear of the Avon valley.

Dte. 28th. August 1912.
Pilot Lieut W. Parke R.N.
Typist H.V.Roe.
Hoorid kick up of the air just then.

1000 feet high. 4-16 p.m. Now turningro und and when Vol Plane to the School Sheds. 4-17 p.m. touched ground.

The first message ever type-written in an aeroplane.

Q.—"Then what damage is alleged?"—A.—"Well, it might have got a chill and developed pneumonia, and pneumonia is very fatal among sheep." Q.—"But, in fact, it did not?"—A.—"No."

Evidence was led on behalf of the Lakes Flying Co. proving the high degree of handiness of waterplanes and the small degree of risk to the public. And an urgent appeal was made not only against any further restrictions, but also that the present restrictions might be removed or modified, in the interests of sport, and of this country generally. But numerous witnesses who had attended to support this appeal, representing most of the important local interests, were not called, thus making it appear that the greater part of local opinion is in favour of restrictions—an entirely erroneous view, as could easily be shown by a ballot of ratepayers.

Flying in Scotland.

The weather has been so bad that Mr. Wilson's Caudron at Lanark has only been out four times in the last fortnight since it was repaired after the Portobello smash. There has never been more than about an hour in the morning or evening fit for flying. Mr. G. S. Wilson has been flying straights every time the machine has been out, and his cousin, another Mr. George Wilson, has done a few hops, both without damage to the machine. Their mechanic, a youngster named Walsh, who was with Mr. Ewen at Lanark, and was afterwards at Barrhead, handles the machine pretty well. Last Saturday morning, after Mr. Wilson had done a few straights, Walsh went up and could not get straightened up to land. He, therefore, proceeded to try and carry over the wood and made a beautiful descent amongst the trees. Mr. Wilson says he can strongly recommend the Caudron for strength, as the wings pushed down several good sized trees and came out not even strained. It is really marvellous what that type of wing will stand. The total damage was very small—namely, the propeller, a tail boom, and the front spar of the tail, through which a bolt had pulled. The most curious thing about the smash is that the machine came to rest within 15 ft. of where Küller "discontinued" at the Lanark meeting. The trees were all cut down to get Küller's machine out, and the Caudron was actually got out after cutting down only two trees.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.

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Saturday, Sept. 21st, Second September Meeting.
Thursday, Sept. 26th, Illuminated Night Flying Display (7.30 p.m.).
Saturday, Sept. 28th, Naval and Military Day.

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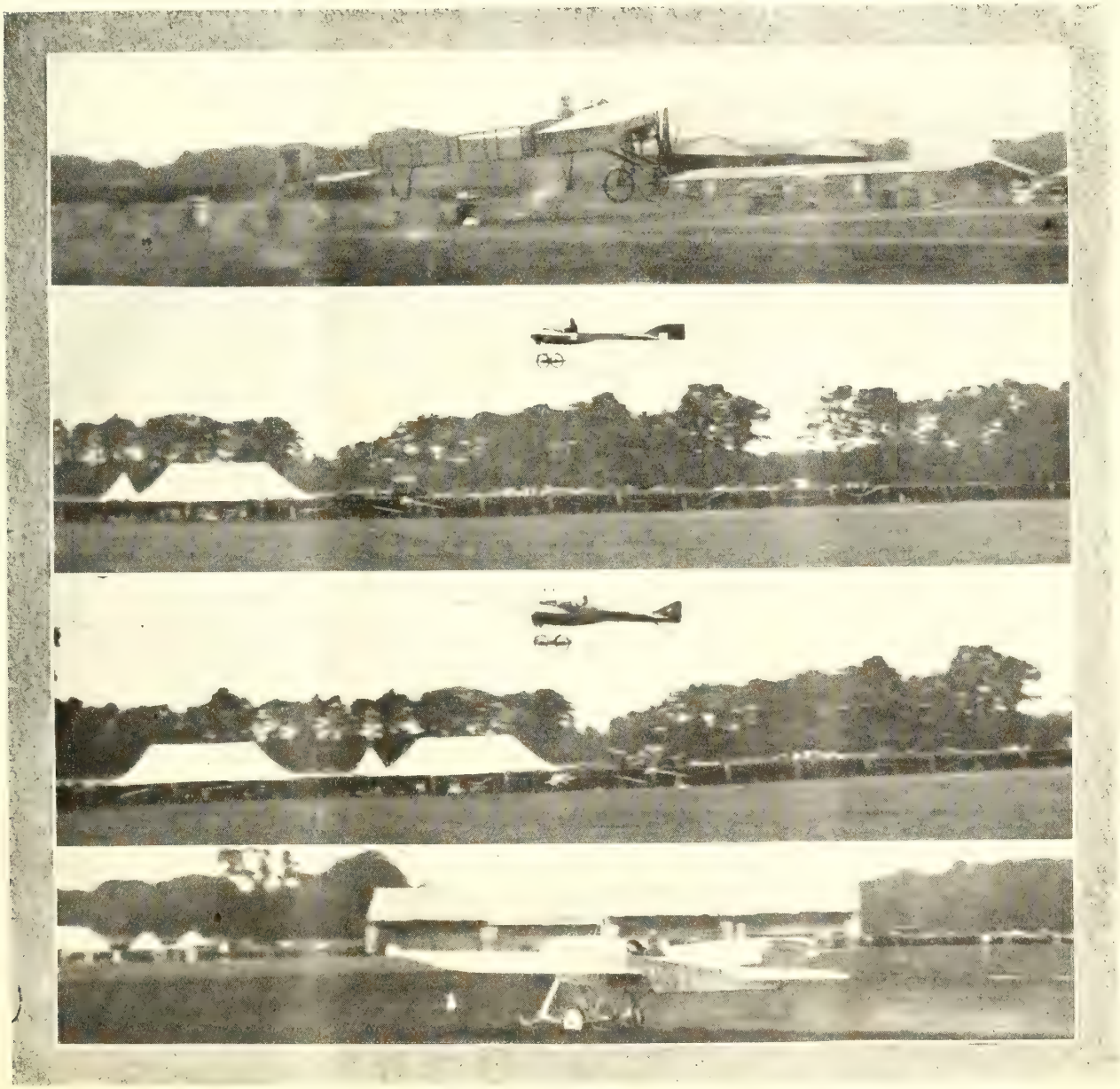
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1d WEEKLY

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NORTHWARD HO!



The starts for the abortive Dublin-Belfast Race on Saturday. From top to bottom.—Mr. Astley (70-h.p. Blériot); Mr. Valentine (50-h.p. Deperdussin); Lieut Porte, R.N. (100-h.p. Deperdussin); Mr. Arthur (70-h.p. Bristol).

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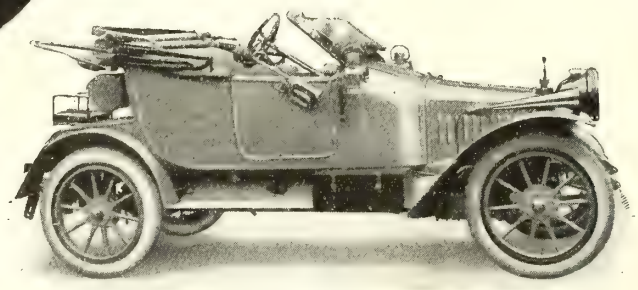
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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Aileron, London.

What Happens Next?

The Military Aeroplane Competition being over, and there being nothing very particular in front of us to attract attention till the Paris Show of next month provides fresh controversial points of design for discussion, the moment seems opportune to discuss or suggest how fresh developments are to be made in aviation. Machines and engines cannot remain as they are, in their present primitive state, nor can the act of flying be confined to naval and military officers, and to the advertising agents of enterprising business concerns. The aeroplane and its engine have to be improved, and flying must be brought within reach of the sportsman who will fly for the fun of flying.

The necessary improvements are so obvious that the chief difficulty is to know where to begin rather than to know what to leave unaltered. Practically everything in every machine existing to-day can be improved in one way or another, and in some cases only the most crass stupidity can be responsible for retaining certain points of design. Some people will argue that because certain machines are turned out in quantities, with all their parts standardised and interchangeable, therefore the aeroplane is approaching finality in design, and we need only concern ourselves with perfecting details and materials, with perhaps certain improvements in the aerodynamic efficiency of the planes.

On the contrary, we are actually further advanced in plane designs than in almost anything else, for we are already able to carry a bigger load to the square foot of surface than even the most efficient of birds. Also, the material and the detail design in the more reputable machines is wholly admirable. Where improvement is needed is in the general outline design and arrangement of machines; indeed, alteration rather than improvement is the proper word for the situation.

Mr. Fenwick's fatal accident on the Mersey and Lieut. Parke's wonderful escape with Mr. Le Breton on the Avro go to show that the whole question of the front elevator needs to be reconsidered—an opinion which Mr. A. E. Berriman, one of the leading scientific students of aviation, expressed to the writer on Salisbury Plain, and a view which one can cordially endorse.

One is naturally averse to reasoning from things living to things mechanical, because Nature's designs are frequently so obviously defective for the uses to which we desire to put them. For instance, no one wants to design a motor-car with legs instead of wheels, and a hopper-feed to a turnip-slicer or corn crusher is obviously superior to the human mouth in simplicity and self-feeding ability. Nevertheless, one cannot help feeling that, as a bird does most of his flying with his head—physically as well as mentally—it may be well worth while investigating the possibilities of a form of combined elevator and rudder in front of a machine, as an auxiliary to those behind. The fact that forward rudders are not a success on ships is no proof that they will not work on aeroplanes. Fish do not move their heads, but birds do.

Experiments in this direction will be much simplified in future by the disappearance of the tractor screw. The propeller is known to be more efficient, especially when geared down, it does not throw oil or cause an unpleasant slip-stream, and it is not in the way. For the last three reasons, also, the naval and military fliers prefer propellers, which makes it practically certain that they will have to be fitted, so constructors may just as well recognise the fact now and design their machines accordingly.

Again, the throwing away of the lives of Captain Hamilton and Mr. Stuart is another proof of the unnecessary danger of the high speed rotary engine, for a similar accident would be impossible with any form of stationary cylinder engine. Over and over again the writer has insisted on this particular danger. If a cylinder comes off, or even if a valve-rod breaks and jambs in the housing of a fifty-horse seven-cylinder rotary engine, the whole engine may pull up instantly without doing material damage to the machine, but in a fourteen-cylinder engine, not only is the momentum so enormous as to carry all before it, but, owing to there being double the number of explosions per revolution, several explosive impulses may follow before anything occurs actually to stop the engine, so that the huge tangled revolving mass carries all before it and practically tears the front out of the machine, as undoubtedly happened in that case.

For short flights by trick fliers, where lightness is everything, the rotary engine may survive, but where weight does not count in comparison with safety, reliability, and fuel efficiency for a long flight there are already many better engines. The rotary engine does not hold the passenger height record, it does not hold the duration record, and these are the best tests of real efficiency. Add to lack of efficiency its inherent dangers, and one sees that it must lose pride of place when the aeroplane becomes a practical vehicle, as it is becoming.

Manufacturers the world over in all trades are quick enough to experiment with new ideas if they can see immediate profits in them, but for some unknowable reason they have a rooted objection to making changes for the better. The boat-body on motor-cars is still only half developed, because car

builders will not realise that the radiator and bonnet are part of the body, yet it is five or six years, or perhaps more, since the "Motor" first suggested the real boat body as it will be ultimately. Nothing but sheer stupidity, mental inertia, and pure laziness prevent the necessary alterations from being made, and we are already up against the same position in the aeroplane industry, young as it is. In consequence we find valuable lives thrown away time after time simply because aeroplane designers have more science than sense, or else are mere copyists.

These are only a few points for consideration, and are merely suggested for that purpose. They are far from exhausting the sins of the designer—they merely indicate directions for improvement.

The Sporting Side.

Turning now to the development of aviation generally. Has it occurred to anyone that this sudden awakening of the authorities, followed by big naval and military orders, which is at the moment the salvation of the industry, may in the end prove its damnation, if the sporting side is neglected?

The natural trend of military equipment is towards standardisation. Once produce an aeroplane which does its work well enough for its purpose, and it will be standardised like a gun. Then all the orders will go to a few big firms and the little ones will expire gracefully but dolefully.

A strong sporting element is necessary if steady improvement is to continue. Consider what would have happened but for the introduction of horse-racing. In the Georgian period, "when every gentleman wore a wig, and every horse a crupper," we had evolved a fiddle-headed, straight-shouldered, puddingy quadruped with no action, no pace, and precious little stamina. Horse-racing produced the modern thorough-bred, the gamest beast that ever breathed, and the most beautiful.

Similarly, but for sport demanding speed and distance, we might all still be wallowing on box-kites. As we are trending now, we may evolve a big, solid, fairly fast military machine and nothing else. The question is, how to develop the sport.

Even to-day few men can afford to fly purely for fun, and keep their own machine and mechanics, but there are a surprisingly large number of men who could afford to spend anything from £150 to £300 a year on flying for sport, if it could be done, and if there was a chance of winning fair prizes to help pay running expenses.

The solution seems to be the foundation of properly run, and soundly financed, flying clubs, to which a man can pay a subscription of, say, £100 a year, to pay interest on capital, and his share of mechanics' wages, and afterwards so much per hour in the air for fuel and insurance, plus a reasonable profit.

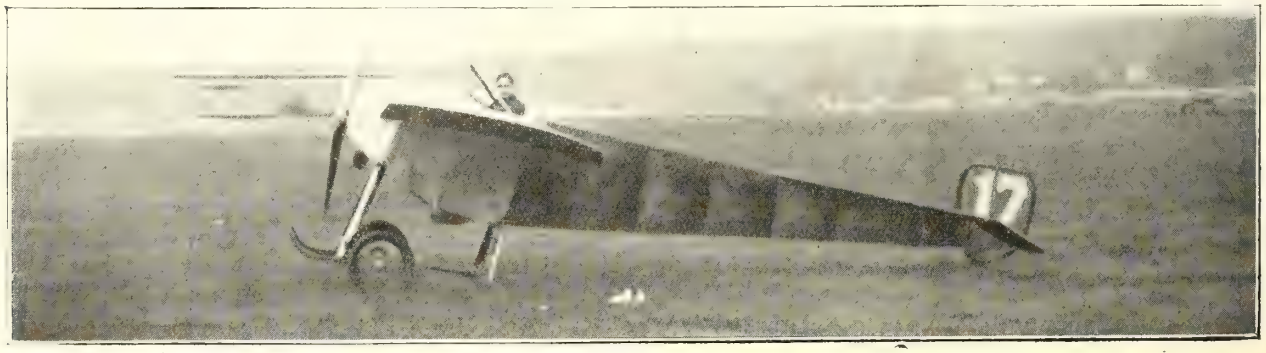
Such a club, possessing a couple of modern monoplanes and a couple of modern biplanes, could provide reasonable flying for something like thirty members, for one knows from school experience that only a small proportion of the members would be likely to turn up on any given day. Use of the machines would then have to be decided by lot, except when actual competition flying was taking place, when the machines would, of course, be booked for competitors only.

The growth of competition would increase public interest, which would mean more gate-money, and consequently bigger prizes. This would naturally bring more money into the attempts to win such prizes, with improvements in the machines as a result. The whole sport would grow more rapidly, the smaller makers would get orders for special machines which the big firms, busy on Government orders, would not be bothered to make, as they departed from standard design. So we should get machines which were able to beat the standard Service pattern and force an alteration in it, just as the development of the match rifle has from time to time forced an alteration in the Service rifle. And so the industry might be kept in a flourishing state instead of becoming a monopoly of perhaps half-a-dozen big firms.

The King and Mr. Cody.

On Thursday of last week Sir Douglas Haig, Commanding-in-Chief at Aldershot, paid a visit to Mr. Cody's shed on Laffan's Plain and read to him a letter from his Majesty the King congratulating Mr. Cody on his victory in the War Office Competition.

Nothing definite is yet known as regards Mr. Cody's future intentions beyond the fact that he has had an offer from the Australian Commonwealth to go to them as an instructor; but it hardly seems likely, after the salaries offered recently, that Australia will be able to offer Mr. Cody sufficient inducement. It is also said that he has had a very good offer from the Austrian Government, which is rather natural, considering that Mr. Cody has done so well with an Austrian engine, as usual getting better results out of it than anyone else, which seems to be Mr. Cody's habit with any engine he uses. It is also said that he has had offers from other foreign Governments, and it is therefore to be hoped that some really important British firm will take Mr. Cody up and allow him to carry out the experiments he wishes to make, so that his services may be retained for this country.



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BY W. E. de B. WHITTAKER.

Great Britain has possessed a standing Army in the modern sense of the word since the latter years of the seventeenth century. Methods of training and matters of technical practice have altered greatly from time to time, but the spirit of service has remained the same. Whatever the politics of the governing party, the two fighting Services have remained unalterably loyal to their king and country. They have not thought of abstract theories of government or the general "well-being of man"; they have quietly remained true to the code of simple loyalty to which they subscribed in the beginning. Whatever the personal character of the individual soldier or sailor, his public honour has been in general unimpeached. And they have taken pride in that they belonged to silent Services.

Before educational reform touched all that is pleasant in life with its blighting and efficient hand the methods governing the selection of officers for his Majesty's Service differed greatly from that at present in practice. Until the middle of the nineteenth century young gentlemen in their 'teens were nominated by certain officers of State and by the War Office. If considered socially and physically suitable they received commissions from the king and were at once attached to a regiment. Starting young, and being of the same class as their brother-officers, they speedily fell into the traditions and habits reigning in the Army. If they failed to do so owing to some idiosyncrasy of character which did not endear them to others, there were ways of gently but firmly excluding them from the Service. In a period more boisterous than our own their manners and customs were not typical of moderation. But the history of this country is definite proof of their efficiency and fitness for the work they undertook.

Promotion to a certain point could be accelerated by the regularised purchase of commissions, and a soldier's career was frequently aided by the judicious use of influence. This all sounds very bad in the light of our modern ideas, but a man's incompetence is sure to find him out, and the most favoured of mortals can do but little if he is not gifted with intellect.

The march of time and the birth of intellect in the German Army awakened interest in the English officer's career. Mr. Cardwell came and the officer by purchase went. The entry of the board school into the economy of existence coincided with the institution of colleges for the mental training of the coming leaders of armed men. And with many a despairing moan the older officer saw the conditions change with gross rapidity and brutal emphasis. The old school foretold the end of the world and then retired gently to play careful card games in the sheltered recesses of Service clubs. But in truth little changed save the initial method of training. The abolition of purchase added to the expense of army life rather than the reverse, and the necessary examinations for entry and so on were designed to suit the mental capabilities of the candidates instead of developing cerebral activity. With all the talk and the democratic enthusiasm, the officer is in general exactly what he was a century ago—a gentleman who has learned to do his duty.

The board school brought in its train an avalanche of cheap literature, for, having taught the people to read, the demand for books must be supplied in some manner. The novelette and the yellow-back came on the crest of the wave, and the great mass of the lower middle classes—the backbone of Great Britain—acquired fantastic views of all sections of life not within their immediate purview. They pictured the soldier as one of charming manners and dissolute morals, who drank heavily in mess and lived a life of careless profligacy. And this idea, fostered by such novels as Ouida's, remains still in the minds of many who, while their position in the world is respectable, number no officers among their friends. The real truth is very far from this. With the exception of one or two regiments, life in the Army is of the quietest description, and as a class the officer is, if anything, in favour of a more ordered life than is the average civilian. In the great majority of messes very little drinking is done, and in many regiments the dulness of the life would drive even a blind beggar to distraction. Some of the quietest and



M. Salmet flying over the sea at Brighton, photographed by Mr. R. W. T. Collins.



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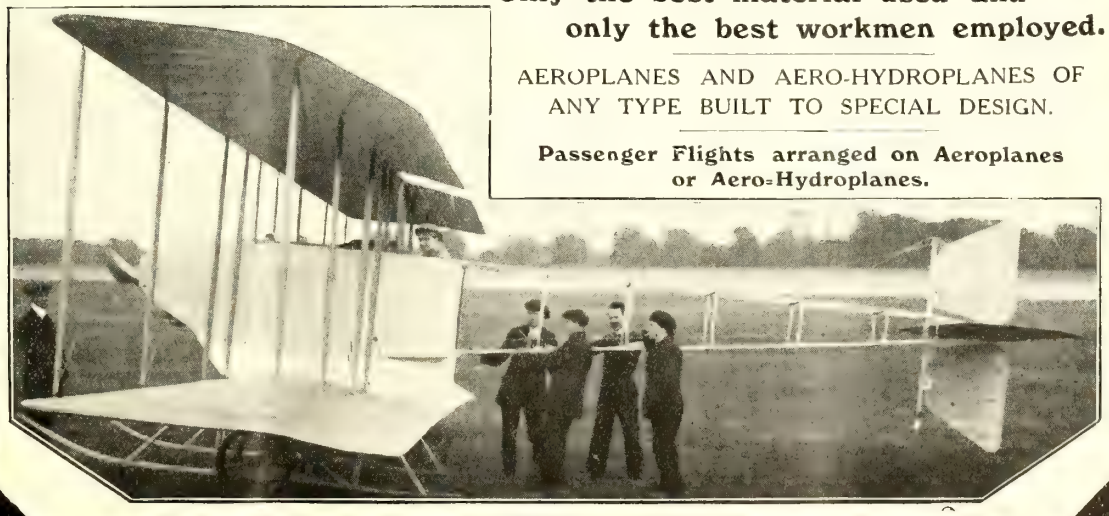
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best living of men whom I know bear commissions in his Majesty's Service.

From time to time there is born a new science of vital importance to the fighting Services. By reason of their opportunities it is frequently the case that the civilian experimenter reaches an advanced stage of proficiency in dealing with the products of such a science before the soldier is even interested. It may then become necessary to develop the new theories in the Army with great rapidity, and there may not be sufficient time in which adequately to train a sufficient number of officers to deal with the subject. Consequently, it is deemed necessary to take, without the usual preliminaries, a number of expert civilians and grant them commissions in the Regular Army. This is the case at present with regard to aviation. A certain number of civilian aviators have been granted commissions without any other recommendation than that they can fly and are not suffering from any strange disease. Some of these men are gentlemen by birth and some by instinct, and with neither class is much trouble to be feared unless they forget. But there is another type—the man who feels insecure as to his position and desires to emulate the methods of life habitual to the stage soldier. It is this type which has more power to do harm to the Service than any other.

In every class of life there are certain conventions to be observed, certain rules to be kept. The good form of Whitechapel is not similar to the good form of Belgrave Square. And in every community where people live together it is essential that there shall be unwritten laws to regulate the common life. It is therefore somewhat extraordinary that men who in their own home-lives act on certain principles should object to the ordered amenities of a regimental mess. Yet so it is.

(To be continued.)

The Royal Flying Corps.

From the "London Gazette." War Office, September 3rd:—

Special reserve of officers, Royal Flying Corps, Military Wing.—W. E. Gibson to be Second Lieutenant (on probation).

The allowances due to officers of the Royal Flying Corps using their own aeroplanes for official purposes are stated in an Army Order of recent date. The points of importance read as follows:—For an aeroplane belonging to and used by an officer on probation for the Royal Flying Corps during his preliminary training in that corps; or by an officer of the First Reserve of the Royal Flying Corps at manœuvres or other military exercises for which he has been detailed: (a) In its first year (reckoned from date of purchase from the manufacturer), 1 per cent. on purchase price, per week. (b) In its second year, two-thirds per cent. on purchase price, per week. (c) In any subsequent year, if machine still passed as suitable, ½ per cent. on purchase price, per week. Fuel, lubricants, and repairs to be provided free by the War Department. For an aeroplane belonging to an officer of the First Reserve of the Royal Flying Corps, and used by him for quarterly flying tests at a military station: (a) In its first year, 1 per cent. on purchase price, per hour of test. (b) In its second, 0.06 per cent. on purchase price, per hour of test. (c) In any subsequent year, if machine still passed as suitable, 0.5 per cent. on purchase price, per hour of test. Fuel, lubricants, and repairs to be provided free by the War Department. For an aeroplane belonging to an officer of the First Reserve of the Royal Flying Corps, or hired from a private company, used to carry out quarterly tests at a private aerodrome: 4 per cent. of the purchase price of the aeroplane for each completed quarterly test of nine hours in the air, including cross-country flights, this rate to cover all risks and the supply of fuel and lubricants. In submitting claims for allowances, officers will attach a certificate, signed by themselves in the case of their own aeroplanes or by the owners in the case of hired aeroplanes, as to the purchase price of the aeroplanes used, and, where necessary, the date of purchase.

In the manœuvres at present being carried out in the eastern counties it is unofficially stated that 24 aeroplanes will take part. Several civilian aviators, such as Mr. Cody, have been invited to attend.—W. E. de B. W.

French Military Aviation.

Reorganisation.

In the "Journal Officiel" of August 27th appear a series of documents relating to the application of the law of March 29th, 1912, dealing with the organisation of military aeronautics. A decree signed by the President of the Republic on August 22nd creates, under the provision of Article 4 of the above law, ten aeronautical sections. These sections, with the seven aeronautical companies and one company of conducteurs (pilots?), are divided into three groups forming corps. This decree sets aside 165 officers and 180 non-commissioned officers (sous officiers) for the aeronautical service. An order of the Ministry of War, dated the same day, determines the stations of the respective sections of the flying services. Three great centres are formed as follows:—

Versailles.—Central portion.—Two aerostation companies (detached fractions. Three aeronautical sections, of which one is detached for special service, at Versailles and Chalons Meudon)—one aviation company (detached fractions at Douai and Etampes). Depots and workshops are stationed within the commands of the military Government of Paris, and of the 1st, 2nd, 3rd, 4th, 5th, 9th, 10th, and 11th Army Corps. Also in Morocco and Tunis.

Reims.—Central portion. Two aerostation companies (detached fraction. Five aeronautical sections at Chalons), one aviation company (detached fractions at Verdun, Toul, Epinal, and Belfort), depots and workshops stationed within the commands of the 6th, 7th, and 20th Army Corps (with the exception of Amberieu, which is under Lyon).

Lyon.—Central portion. One aviation company (detached fractions. Two aeronautical sections at the Camp d'Anvairs and at Pau), depots and workshops stationed within the commands of the 8th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, and 19th Army Corps and at Amberieu.

This organisation should be in full operation by October 1st, 1912.

Manœuvres.

The French Manœuvres this year take place in the west. The Blue Army (defending), commanded by General Gallieni, has its headquarters at Chalet. The Red Army is commanded by General Marian, and the Director of Manœuvres is General Joffre, with General de Curières de Castelnau. Each army has attached to it one dirigible balloon, and four escadrilles of six aeroplanes apiece. The disposition is as follows:—

Aeroplanes.—Blue Army (General Gallieni).—Director of Aviation Service, Lieut.-Col. Bouttieaux. Escadrilles.—1, Capt. Schneegans; 2, Capt. Michaud; 3, Captain Bellanger; A, Capt. Casse; Army aviation park, Captain Ludmann; reserve, Capt. Jaillet.

Red Army (General Marian).—Director of Aviation Service, Lieut.-Col. Estienne. Escadrille 4, Capt. Carlier; 5, Capt. Leclerc; composite escadrille Capt. Etévé; B. Capt. Francezon; Army aviation park, Capt. Sourdeau; reserve, Capt. Petard.

Dirigible balloons.—Blue army.—The "Dupuy-de-Lome" at Voultejon, Capt. Néant.

Red Army. — The Adjudant Réau at S. Martin, Capt. Renaux.

Notes.

Commandant Dorand, of the Aeronautical School at Chalais Meudon, and Capt. d'Allest, of the School of Practice at Bourges, are, accompanied by other junior officers, at present at Toulon experimenting with a new gun designed expressly for action against aeroplanes.

The dirigible balloon (Clément Bayard) "Dupuy-de-Lome" was accepted by the Ministry of War on September 1st after a flight of twenty hours, during which it covered a distance of 800 kilometres.

On September 3rd, at Buc, Capt. Destouches and a military commission took delivery of four single-seated Borel monoplanes (50-h.p. Gnome engines).—W. E. de B. W.

Portuguese Military Aviation.

Colonel Albino de Costa, of the Brazilian Army, has offered to present an aeroplane to the Portuguese Army, the value to be £1,000. The machine is to be delivered within a month.—W. E. de B. W.

Russian Military Aviation.

Aeroplanes were employed in the Imperial manœuvres, which took place from August 26th to 28th. Two armies were engaged—the Western (Red), including two Army Corps, one of the Guard, and one of the Line, and the Eastern (Blue), of a single Army Corps of the Line. The Grand Duke Nicholas

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Nicholaivitch directed the proceedings, and H.I.M. the Czar was present. An escadrille of four aeroplanes, a dirigible balloon and a free balloon were attached to each army. The Red escadrille was commanded by Captain Gorschkov, and the Blue by Lieut. Datskevitch. So far as is known their employment was successful.

Lieuts. Kovnako and Modrack are learning to fly at the Nieuport School, Mourmelon.—W. E. de B. W.

German Military Aeronautics.

It is rumoured that the dirigible balloon Z.11 will not be employed in the manœuvres owing to certain serious faults of construction.

According to an article written by General Metzler in a German military paper there will be in Germany on October 1st three aeronautical battalions of two companies each, a Bavarian aeronautical company, and aviation section with detachments in Saxony and Bavaria.

On September 6th Lieut. Steger, of the Military Flying Corps, was killed at Oberwiesenfeld while flying a biplane early in the morning. He was 29 years of age, and an efficient officer.—W. E. de B. W.

Continental Notes.

M. "André Beaumont" has been flying a Donnet-Lévèque hydro-biplane (50-h.p. Gnome) at Bilbao in the presence of H.M. King Alphonso XIII.

The Circuit of Berlin race, which was flown on September 1st and 2nd, was won by Lieut. Kruger, who completed his three circuits in 3 hrs. 32 mins.

The hydro-aeroplane meeting at Tamise on the Scheldt, began on September 7th, and ends on the 16th. Fifteen aeroplanes have been entered, nine of which are biplanes. The entries are as follows (pilots' names in brackets):—1, Triad, Paulhan Curtiss, 85-h.p. Curtiss motor (Barra); 2, Triad, Paulhan Curtiss, 85-h.p. Curtiss motor (Mollien); 3, Lanser biplane, 70-h.p. Gnome (Lanser); 4, Jero biplane, 70-h.p. Gnome (Verschaeve); 5, Maurice Farman biplane, 70-h.p. Renault (Renaux); 6, Sanchez Besa biplane, 70-h.p. Renault (Benoist); 7, Sanchez Besa biplane, 70-h.p. Renault; 8, Donnet-Lévèque biplane, 80-h.p. Gnome (Beaumont); 9, Aviatik biplane, 100-h.p. Aviatik motor (Buchan), 10; Nieuport monoplane, 100-h.p. Gnome (Gobé); 11, Nieuport monoplane, 100-h.p. Gnome (Weymann); 12, R. E. P. monoplane, 80-h.p. Gnome (Molla); 13, Astra Train monoplane, 80-h.p. Gnome (Gaubert); 14, Borel monoplane, 80-h.p. Gnome; 15, De Brouckere monoplane, 100-h.p. Gnome.

The regulations are similar to those in force at previous meetings. Points are awarded for duration, speed, alighting capabilities, and so on. An increased number of marks is given according to the number of passengers carried.

M. Guillaux, flying a Clément Bayard monoplane, left Bordeaux at 5.33 a.m. on September 6th in an attempt on the Coupe Pommery. He reached Poitiers at 8.25 a.m., and left again at 9.10 a.m. He landed finally at Saint Ay, near Orleans, owing to the high wind.

British Attempts on the Pommery Cup.

Mr. H. J. D. Astley, accompanied by Miss Trehawke-Davies on her well-known two-seater tandem Blériot, made an exceedingly good flight on Tuesday last, September 3rd. They left Issy in an attempt on the Pommery Cup at 5.29 a.m. and reached Mézieres safely. Here, owing to a mistake on the part of the mechanic sent with supplies, there was a delay of some hours while they found the man and got the supplies to the machine. They started again, but lost their way owing to the bad weather, and eventually got to Bonn.

There they made up their minds to go back to Paris, and on the Wednesday morning started to do so. The wind drove them somewhat out of their course, and they landed at Maestricht in a ploughed field, in which the wheels sunk up to their hubs, and the machine came down on one wing-tip without, however, doing any damage.

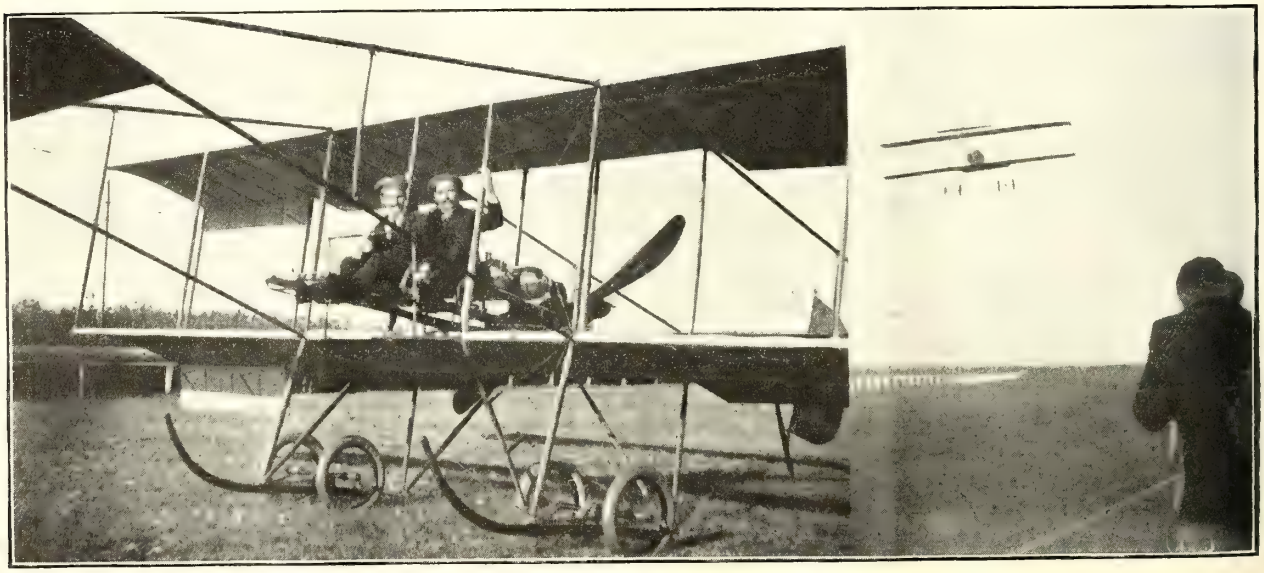
The next morning they started again, having got the machine out, and in getting away from a field of reaped corn they struck some of the sheaves. The machine, however, continued to fly, but Mr. Astley noticed that it was flying tail down and that the warp was working stiffly. In spite of this they continued flying in a very bad wind till they reached Liège, and on alighting there they discovered that a whole sheaf of corn had been caught and wedged in the tail skid, and that the greater part of another sheaf had stuck in the struts of the warping gear and wound itself up in the cables. The extraordinary thing is that the whole thing did not get locked and turn the machine over.

At Liège they left the machine, as Mr. Astley had to get to Dublin for the Dublin-Belfast race, but he and Miss Davies have by no means given up their intentions on the Pommery Cup for, after his return from Ireland, where he hopes to fly at Belfast next Saturday, Mr. Astley and Miss Davies will probably make yet another effort to bring the cup to England.

Flying in South Africa.

Mr. Compton Paterson has been doing excellent work in South Africa lately. On July 21st he finished up three days of exhibition flying at Durban. The crowd seemed particularly impressed by his shutting off his engine and doing a genuine glide. He also entertained them by racing two motor-cycles round the track which he was using as a starting ground, giving them about 500 yards start in 5 miles. In fact, he surpassed them so much that he was able to do a sharp turn after catching them and then fly up the finishing straight over the first motorist.

His first passenger on this occasion was Mrs. F. C. Hollander, the wife of the Mayor of Durban; and among his male passengers was General Sir R. S. S. Baden-Powell, who happened to be inspecting the Boy Scouts at Durban at that particular time. Apparently there was a big demand for passenger flights, so it is hoped that the visit paid for itself.



Mr. Compton Paterson, with Mr. Atkey, of Macclesfield, as passenger, at Durban, Natal.

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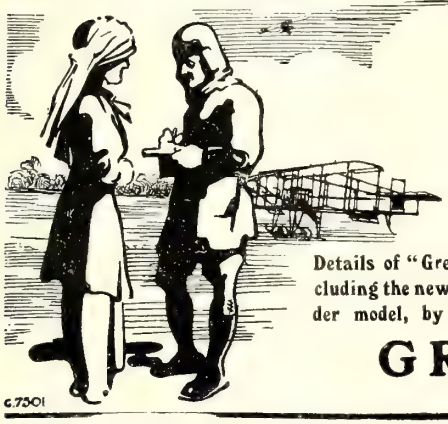
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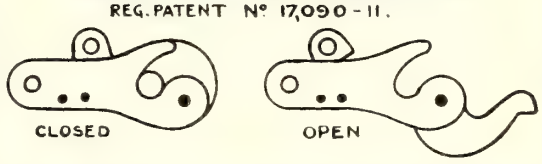
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The Deaths of Captain Hamilton and Mr. Wyness-Stuart.

A few minutes after seven o'clock on the morning of September 7, Captain Patrick Hamilton and Lieutenant Athole Wyness-Stuart, of the Royal Flying Corps, were killed while flying in a 100-h.p. Gnome-engined French Deperdussin monoplane in the neighbourhood of Graveley. This aeroplane was purchased from the makers after the conclusion of the Military Aeroplane Competition, and had only been with the Royal Flying Corps for a few days.

The two officers left Wallingford at 6.10 a.m. with orders to make observations and land at Welwyn. When passing over Graveley at about 1,500 ft. the machine was seen to rock violently, the wings collapsed, and it dived to the ground. The aeroplane was smashed to pieces, and both officers were unrecognisable. The inquest was held on the following day at St. Saviour's Schools, Hitchin.

Major Brooke-Popham's evidence gives what is probably the correct explanation of the accident, and I therefore give some extracts from it. He said the deceased officers left Wallingford on reconnaissance duty with the cavalry. Captain Hamilton was pilot, and Lieutenant Stuart was his observer. They left Wallingford at 6.10 a.m., and Captain Hamilton's orders were to take observations and report on landing at Welwyn. Witness, as observer, with Mr. de Havilland, started three minutes later. They kept Captain Hamilton's machine in view for about fifteen miles, and when lost sight of she was flying about 2,500 ft. up. On landing at Welwyn about 7.30 witness was informed of the accident, and immediately motored over. He found the monoplane lying in a hollow a total wreck. The machine had just been through the trials at Lark Hill, and won second prize in the open class. Witness had seen it fly in worse winds than that which prevailed on Friday morning. It was not a good day for flying; the wind was steady high up, but was very gusty below. Captain Hamilton had flown the machine about three hours on a previous occasion, and had used a machine of similar type for about eight months.

Major Brooke-Popham was asked if he could give a suggestion as to how the accident occurred, and replied that from observations he had made he had come to the conclusion that the primary cause of the disaster was that there was an accident to the engine. A valve, being disconnected through the fracture of a valve-rod, was twisted round with the revolutions of the engine, and probably tore out a piece of the engine, which in turn smashed up the front diagonal strut. Then the vertical strut became broken, and the wires which kept the wings in place being liberated flapped, he was told by observers, loosely in the wind. The machine then fell like a stone. Further questioned, the major said he did not think the bad weather had anything to do with the accident, which was purely one of a mechanical nature.

Captain Patrick Hamilton was born on June 3rd, 1882, and received his first commission as Second Lieutenant on June 8th, 1901; Second Lieutenant, Worcestershire Regiment, March 9th, 1901; Lieutenant, Worcestershire Regiment, February 28th, 1902; Captain, Worcestershire Regiment, October 24th, 1908; Air Battalion, May 1st, 1912; Royal Flying Corps, May 13th, 1912.

Lieutenant Athole Wyness-Stuart was born on September 6th, 1882, and received his first commission as Second Lieutenant in the Royal Field Artillery (Special Reserve of Officers) November 6th, 1909. He was appointed to the Royal Flying Corps a few weeks ago.

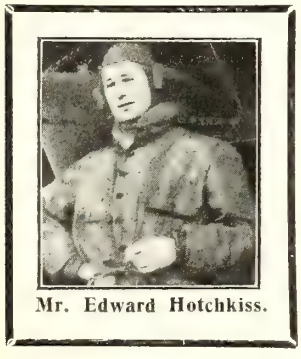
Captain Hamilton took his certificate, No. 194, on a Deperdussin monoplane at Brooklands on March 12th, 1912, though he had been flying abroad for nearly a year previously. Mr. Wyness-Stuart's certificate was No. 141, taken on a Bristol biplane at Brooklands on September 26th, 1911. These officers died in the performance of their duty, and no finer tribute can be paid than to acknowledge this.



Capt. Hamilton (above) and Mr. Wyness-Stuart.

The Deaths of Mr. Hotchkiss and Mr. Bettington.

On Tuesday morning another double fatality occurred to officers of the Royal Flying Corps. Mr. Hotchkiss, with Mr. Bettington as passenger, was flying near Oxford, presumably from Lark Hill to the manœuvres in East Anglia, on the Bristol monoplane with an 80-h.p. Gnome engine which Mr. Busteed flew in the Military Aeroplane Competition.



Mr. Edward Hotchkiss.

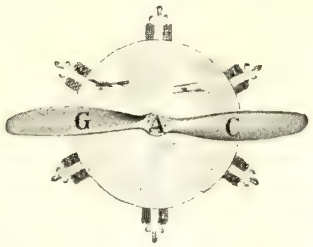
When over the Port Meadow the machine came down, and both its occupants were killed. It is reported that the machine exploded in the air, but more accurate details are lacking at the moment of writing.

Edward Hotchkiss, the pilot, is, of course, well known as the chief instructor at the Bristol School at Brooklands, where he has been doing excellent and very strenuous work for several months. He was exceedingly well liked and respected by all those with whom he came in contact. Quite lately he was gazetted second lieutenant on probation in the Reserve of the Royal Flying Corps, and was flying this machine almost for the first time. He was born in Shropshire on June 2nd, 1883, and educated as an engineer. Last year he joined the Bristol Company, and took his certificate on a biplane on Salisbury Plain, the certificate being No. 87, and dated May 16th, 1911.

Claude Bettington was also a pilot of a Bristol biplane, his certificate being No. 256, dated July 24th, 1912, and he learned to fly both at Brooklands and Salisbury Plain. He was born in Cape Colony on May 13th, 1875, and was a lieutenant in the Royal Artillery. In that capacity he went through the whole of the South African War, being in Ladysmith throughout the siege, and winning both the Queen's and King's medals, with a number of clasps. After the war he left the Service, but on the formation of the Royal Flying Corps he applied for an appointment and was made a lieutenant on the permanent establishment, not in the Reserve, as has been stated.

Two more good men have died on duty. One can only hope that those responsible for the Flying Corps will prevent more lives being thrown away, as these four certainly seem to have been, by permitting pilots to fly across country on machines to which they are unaccustomed, and through using engines of a type which are inherently dangerous under any circumstances.

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The Dublin-Belfast Race.



Before the Start.—The "quality" inspecting Mr. Astley's Machine in front of the tent hangar.

I have here the honour to record that the committee of the Irish Aero Club is the Irishest thing that ever happened. It manages to hold the most successful aviation meetings, sporting and financial, in Europe, on the worst aviation ground in the world; it allows its preliminary arrangements to be governed by business considerations worthy of a Belfast horse-coper, and it dispenses the results with the lavishness of a Mayo county gentleman who has never paid duty on Spanish wines or home-made spirits; it growls at aviators for not flying in a howling gale, and acclaims them as heroes for doing half what they set out to do. All of which is more or less true, making allowance for the fact that it is written, at any rate, within sight of Ireland after three days of Irish hospitality and the nerve-destroying sights of the start of the race to Belfast which never arrived there.

As usual, the fates did their worst, and Ireland beat them, also as usual. Entrant after entrant in the race signified that he was not coming over, and on Thursday, when I first went out to Leopardstown, the only machines there were Mr. Desmond Arthur's Bristol, Mr. Valentine's Deperdussin, and Mr. Astley's Blériot, the owner of the latter being then somewhere between Cologne and Liège, course and distance unknown. He turned up on Saturday morning, looking tired, not having been in bed for four nights. He had flown from Paris to Bonn on Rhine, and back via Maestricht to Liège, since the previous Tuesday, and thence had travelled to Dublin. Next day Lieut. Porte, R.N., and the 100-h.p. Anzani British Deperdussin arrived, as did M. Salmet and his weather-worn Blériot. The latter was only there to make exhibition flights, so we were left with four competitors, but with the satisfaction of knowing that all four were of a class fit to do anything the best-boomed fliers in the world could do in the way of cross-country flying. That evening Valentine went up for ten minutes or so when the wind had dropped a little, and Arthur did some taxi-driving on the Bristol to see what happened when one tried to jump sunk roads.

The actual starting track arranged was a strip 220 yards long running along the side of a steepish slope, across the



Good Workers.—Mr. John Dunville (Chairman, Irish Aero Club), Mr. D. F. Gillman (Secretary), Mr. J. C. Percy (Organiser), Mr. J. G. Drury (Chief Steward), and Mr. Perrin (Secretary, Royal Aero Club).

middle of it, and at the end of it was a road, of which the gutters had been filled with loose sand. After that was another hundred yards of grass, and then a big tent-hangar, with a tree at one end, and some small tents for storing petrol and oil beyond that; so that if a machine got off badly at the end of the 220 yards and the engine failed, the pilot had the choice of landing in the hangar, in the tree, or in the petrol. And the beauty of the arrangement was that if the hangar had not been pitched in that spot there would only have been a 4-ft. jump over a little hedge into another field as big as the starting field or bigger. Furthermore, it had seemed good to the management to put the two-shilling crowd into that particular field, so that in starting against any wind between north-west and south the pilot had to go out over the heads of this crowd or else right over the club lawns and enclosures, within 300 yards of his start, whereas by planking over a narrowish ditch they could have got a clear run of over 400 yards. However, I do not fancy Leopardstown is likely to be used as an aerodrome again, so there is no use in labouring the point, but it is necessary to mention it in order to understand the manœuvres of the pilots.

The Race Day.

On Saturday it was still blowing, and threatening rain as well, but huge crowds went out to Leopardstown; bigger, I was told, than at the race meeting which the King patronised. At 1.30 p.m., when the race was due to start, word came from Valentine's faithful mechanic in Belfast that it was raining hard, so the competitors decided it was no use starting, especially as the top of the Three Rock, some 300 ft. above us, and a few miles away, was capped with clouds doing about thirty miles an hour. Naturally no one fancied going twenty miles out to sea across the middle of Dundalk Bay and getting caught in a rainstorm, nor did they like the chance of hitting the 2,000-ft. Slieve Donard in a fog if a barometer failed to register their height.

Last week I suggested that they should be compelled to fly inside Dundalk, so as to keep them over land, but a prominent member of the committee told me they decided against this because if it was known that the race could be seen all along the route it would spoil the gates at Belfast and Dublin, and that anyhow the competitors could follow the coast if they chose—just as if anyone with the race fever on him would think of doing so. If one put up a steeplechase course of alternate barbed wire and spiked rails one would always find jockeys to ride over it.

Moreover, Astley had been up about 12.30, and got a nasty pitching about, which did not encourage anyone to start. Incidentally his first attempt at landing was baulked by three or four of the various superfluous officials walking right across the middle of the best patch of landing ground, so he had to switch on and get going again in the face of the crowd, who bolted like rabbits as he headed for them.

About 2.30 or so the merry Salmet went up, as announced, "to give an exhibition of spectacular flying." He did, but it was not the usual Salmet with his switchback and banked turns and pretty tricks; it was just the plain, solid aviator Salmet hanging on to his little cloche like grim death, and wondering what had happened as he got gust after gust over the back of the grand stand, and then curly ones off the little hills round Stepaside. He did two big circuits, getting a very nasty drop the second time round, and made a very pretty landing, but advertisement or no advertisement, he did not go up again, and he told me that the conditions were "hor-r-r-ible."

Then word came that it was fine and sunny in Belfast, so the four pilots decided to start. Then rain came, and delayed them some more, but somewhere in the direction of 4 p.m. the rain stopped, the machines came out, and it was arranged that the race should be to Belfast only.

The Start.

Astley, Arthur, and Porte elected to start from the east side of the ground, directly uphill, facing the grand stand, along a narrow strip between the two roads across which the prepared starting straight ran, but Valentine took his little Dep. into the big field with the ditch across it, preferring to run into the ditch and pile his machine up if she did not lift, rather than chance mincing up the crowd with his propeller.

Astley got away beautifully, the ancient Blériot—which is Mr. Sopwith's old American prize-winner, and the "Aerial Derby" winner also—fairly bouncing off the ground and over the crowd, going up in a right-hand climbing banked turn with the wind under the left wing, a nasty sight if anyone with less beautiful hands than Astley had been at the helm.

Then Valentine went off out of his field cornerwise, jumped the hedge before he got to the hangar-tent, went over the 2s. crowd, and got a gust over the trees which laid him gracefully back on to his tail and his left wing-tip. But the little old Deperdussin, the veteran of last year's "Circuit of Britain," rose like a cork, jumped all over the place, and after a big circuit in the direction of the Hell Fire Club Mountain, turned and headed across Dublin Bay, far behind Astley. It is a pity that some of those who ascribed Valentine's resignation of his mount in the Military Trials to loss of nerve were not there to see that start. The mere idea of starting in that wind, over that country, out of that hole would be enough to break most men's nerve.



Mr. Astley making the first flight of the day.

Porte tried next, but, not liking his position, had his machine wheeled round to the place whence Valentine had started, and then Desmond Arthur made his sporting effort. His 70-h.p. Bristol is a fast and powerful machine, carrying a big load, consequently she cannot be jumped off the ground like those volatile French machines; she needs a long steady run to get up speed, and then rises with the dignity due to her solid English origin. Unfortunately—like her political compatriots—she was up against the Irish question, where it was necessary to act quickly or not at all. Her Irish pilot—again a political similitude—gave her every chance, and humoured her by taking her over as much ground as possible, but she was in too congested a district, and she met a corner of Ireland at the cross-road which swept away her chief support—by the process of pulling off the right tyre—so that she swept away a flag (not a Union Jack, only a flag marking a danger point), swerved all over the place, made a gallant attempt to rise, but came down and charged for the corner of the crowd by the petrol store. It looked as if there was going to be an ugly accident, but again Irish skill saved the situation, and Arthur pulled her up a few yards short of disaster. She was wheeled back to the starting-point, Arthur intending to try again and chance

getting off lopsided, but we discovered that the broken flag-staff had made a hole as big as one's fist in his right wing, so he gave it up as a bad job, and the Anglo-Irish coalition was dissolved. A most entertaining and allegorical performance, and quite funny, except that one was naturally very sorry for Arthur, who is a fine flier and had lost a chance of proving that fact in a big race. However, he will yet do a big performance if given a chance.

Lieutenant Porte's Fine Performance.

When Arthur had ceased gyrating, Porte made his effort, and a very fine one it was. The big Deperdussin—it was the British one with the 100-h.p. Anzani engine, which flew so well in the Military Trials when the engine behaved—rose like a gull, beautifully steady, and without rocking in the least, but by the continual flickering of the wings, with their enormous warp, one could see that Porte was working like a navvy. Warp after warp to the limit could be seen, each enough to turn the machine on her beam ends if she had been flying in still air, and yet the wings themselves remained almost horizontal. It was a beautiful example of real "airmanship," and revealed to some of us for the first time how good a flier Porte really is. Presently, after apparently going about at Rathfarnham, he was seen coming back, and, to everyone's surprise, he landed in the field from which he started, though it meant coming much lower over the railway station to reach it. The landing itself was perfection, not a moment's hesitation anywhere, hardly a bump on touching ground, and then a perfectly straight roll to the one corner of the field where it was possible to pull up without falling into the dtch. It was a lovely piece of work, worth going miles to see, and I think it increases Porte's reputation more than if he had gone on, for we all know he can fly across country in a straight line.

Being an Irishman, and therefore intensely practical, Porte explained that he knew he could not get to Belfast, for the gusts were simply pulling the warp-wheel out of his hands, and he would have been too tired to hold out at the rate of progress possible against such a wind. That would have meant landing somewhere out in the country, with attendant expense, and the probability of damaging the machine in getting into one of the little stone-walled fields round Dundalk way. As he put it, the machine was worth £1,500 as she stood, but if she landed on a stone wall she would not be worth fivepence. The event proved his sound judgment. And anyhow, being managing director of a big manufacturing concern, he has business responsibilities which do not warrant his taking risks which may be all very well for a younger man without so much depending on him. At any rate, he proved that he and his British Deperdussin can fly as well as the best, so what need was there to do more?

After his landing there was nothing else to see, so everyone went home—left, right, left, right, left—as fast as they could, and I believe most people realised that they had seen far better flying than if it had been a perfect day.

The crowd was thoroughly sportsmanlike, and cheered each pilot like anything when he started, and I heard very little grumbling about the long wait, for everyone seemed to understand that the weather was about as bad as it could be without absolutely stopping all flying.

The Results.

Late at night I went round to the Shelbourne Hotel, the centre of sporting Dublin, and found Mr. Harold Perrin just back from a late sitting of the committee, where the prizes had been awarded. With him was Mr. Harry DelaCombe, who was managing affairs for Astley and Valentine, excellently pleased at the result, in that the committee had been more than generous, and no damage had happened to anyone. Valentine had come down at Newry, and Astley had got nearly as far, but, seeing he could not reach Belfast, had turned and made for Dublin, landing for lack of petrol near Drogheda.

The committee, recognising the fine performances put up in the awful weather, had divided the prize-money thus:—

H. J. D. Astley, £150, plus £40 for expenses.
James Valentine, £150, plus £40 for expenses.
Lieut. J. C. Porte, R.N., £50, plus £40 for expenses.
Desmond Arthur, £25, plus £40 for expenses.

This splits the original £300 prize between Astley and Valentine, and gives the "Shell Spirit" prize of £50 to Porte, Arthur coming in for a special £25 out of the gate money in recognition of a really sporting effort under impossible conditions.

Mr. Astley's Narrative.

Mr. Astley had come back by train from Drogheda and gone to bed, so I went up and demanded the true tale of what happened to him. He said he got away all right—anything short of being turned upside down is "all right" to him apparently—but the higher he got the stronger the wind became, till, when he was off Drogheda at 5,000 ft., he found himself being blown out to sea. He had to turn more and more towards the land to keep on his correct course, till finally he found himself with the machine heading nearly due west and standing still. For twenty minutes he stuck there, about six or seven miles from the shore, facing the mouth of the Boyne, with the same bit of coast over the front of his wings. Then he saw three different clouds coming towards him from different directions at different levels, so he dived towards one which seemed to be travelling north, and in five minutes he had covered seven or eight miles towards Dundalk.

There he came down to about 1,000 ft., where he got a bad shaking, but struggled on till close to the mountains which separate Dundalk from Newry. He then found he had been flying for an hour and three-quarters, and not caring to face the mountains with only a quarter of an hour's petrol in his tank he resolved to turn back, and in the remaining quarter of an hour he got back as far as Laytown, near Drogheda, where he landed.

While he was standing still opposite the Boyne he kept looking down for Valentine, but never saw him, and on his return to Dublin he heard by telephone from Valentine that the latter had passed under him, travelling in a more or less favouring current, and had seen him hanging in the air some 2,000 ft. above him.

Mr. Valentine's Restricted Landing.

Valentine, it appears, landed near Newry in a tiny field just three times the length of the machine, and he said that as he landed his machine was blown to a dead standstill, so that he never reached the fence at the other side. Altogether both of them thoroughly earned the prizes they got, without actually winning them.

Somewhat naturally the Belfast crowd grew restive when the fine afternoon arrived without any aviators, and it might have been better policy to have induced M. Salmet to go there and perform, in case of non-arrival of the competitors, seeing that the Dublin crowd were sure of seeing flying anyhow. Whether the Belfast crowd got their money back or not I do not know, but I hear that a large portion of the general gate-money after paying expenses is to be given to Belfast charities as a peace-offering.

As was only to be expected in Dublin, the affair as a whole was most enjoyable. Messrs. J. C. Percy, "Jerry" Garland, T. W. Murphy, J. G. Drury, and Co. worked admirably for everybody's comfort, and Surgeon-Major Webb, directing a detachment of Hussars and of mounted police, carried out sweeping movements across the landing ground at intervals during the afternoon, in the hopes of keeping it clear of superfluous human obstacles.

Everybody was good tempered, most people were amused, the aviators made good in their performances and financially, and the "gate" paid for everything, with a bit over. Evidently the Dublin people appreciate flying as a sport, so let us hope we shall soon have another meeting in Ireland, but don't, oh! please don't, let us have it at Leopardstown.

A Notable Absentee.

Great regret was expressed at the absence from Leopardstown of Mr. Edward White, the secretary of the Irish Automobile Club and of the Irish Aero Club, who did all the preliminary organising for the meeting. Mr. White was taken suddenly ill a week or two before the meeting and had to be operated on for appendicitis. For some days his life was in grave danger, but on the Friday I learned that he was well on the mend, and everyone will wish him a speedy recovery. He found a capable successor in Mr. Gillman, who did all the secretarial work admirably.—C. G. G.

At Belfast.

Mr. Harry Ferguson, who was in charge at Belfast, writes: "You can have no idea how decent the crowd at Balmoral was on Saturday last; they sat there for five solid hours on a very cold afternoon with intermittent showers, and I never heard a murmur the whole time.

"When it was utterly impossible for a man to land owing to the darkness, I asked the band to play 'God Save the King,' and after it had finished the people walked away without a word, and, save for a bit of a free fight I had amongst about half a dozen drunks, there was not a complaint.

"I went up to Dublin yesterday to see if I could arrange about giving them an exhibition of some description at a nominal fee, and I am glad to say this has been done. Astley and Valentine are to come next Saturday afternoon, and we are only charging a very small admission figure, and the proceeds will be handed over to the Lord Mayor for charities."

The Week's Work.

MONDAY, September 2nd.

R.F.C. Central Flying School.—Capt. Fulton on Avro 405 three flights, once with Capt. Alston. Capt. Alston, Lieuts. Abercromby and Waldron on same. Capt. Fulton, Lieut. Abercromby and Capt. Alston on Avro 404. Lieut. Longmore, R.N., on Maurice Farman 403 with Lieut. Waldron as passenger. Lieut. Martyn twice, and Lieut. Cholmondeley one long flight on same. Capt. Broke-Smith on Bristol 408, once with Asst.-Paymaster Trewin, Capt. Becke, Capt. Salmond, and Lieut. Smith-Barry, each once on same. Capt. Gerrard, R.M.L.I., with Lieut. Anderson, on Nieuport monoplane for long flight to Lark Hill and returning. Capt. Gerrard also on Short 401 seven flights, four with Lieut. Lushington, one with Lieut. Courtney, and twice alone. Lieut. Lushington three flights for brevet, Lieut. Hubbard two solos, and Lieut. Winfield-Smith one solo on same.

R.F.C., Farnborough.—Early, airship "Gamma" several long flights. Capt. Raleigh and Lieut. Carfrae both out on 100-h.p. Bréguets, taking passengers. In evening, Lieut. Carfrae several flights on Bréguet, taking passengers. Capt. Darbyshire on B.E.5, Mr. de Havilland on B.E.2, Mr. Cody out on biplane long flights at good heights, all flying until dark.

Hendon.—At Grahame-White School, at 6 a.m., Mr. Holscher on No. 7 biplane doing good straight flights, and making excellent landings. Mr. Mateyka out on same machine, and while making straight flight stalled machine in air and pancaked, smashing landing chassis and lower plane. Lieut. Small rolling on No. 1 biplane.

At W. H. Ewen School, pupils out at 5.30 a.m. Lieuts. Bayly and McMullen and Mr. Eric Conran making good straights and hops on No. 1 monoplane. Messrs. Apcar and Gist several straights on monoplane. Mr. Ewen out on 35-h.p. Caudron, after which he handed machine over to Mr. Sutton for practice. Wind put an end to pupils' work and Mr. Ewen then took all above pupils for flights and also gave passenger flights to Master Davis and Mr. Sydney Pickles, late of Brooklands, who was greatly impressed by speed and lifting power of Caudron biplane.

At Deperdussin School, in morning, Lieut. Hawker, Messrs. Andrews and Spratt, all doing straight flights on taxi No. 2. Mr. Gill two circuits on racer.

Brooklands.—At Sopwith School, early, Mr. Hedley on school Farman for a circuit or two. Engine giving trouble brought proceedings to a stop.

At Vickers School, Mr. Macdonald arrived from Salisbury on No. 6, the military trials' machine, between 7 a.m. and 8 a.m., after a 50 min. journey. In evening Capt. Stott and Messrs. Barnwell and Geere out on No. 3, and Mr. Knight on Farman.

At Hanriot's, Mr. Sabelli on 50-h.p. Gnome single-seater flying for 20 mins., landing practically in dark.

At Bristol School, Mr. Harrison out at 6 p.m. on two-seater monoplane and made a circuit intending to fly to Salisbury, but found weather too bad. Just before dusk Mr. Hotchkiss up with "Capt." Penfold, Lieuts. Hanlon and MacLean. Mr. Merriam in dark with Capt. Reed and Mr. Payze.

Eastchurch.—Lieut. Parke, R.N., flew No. 2 round island with Private Edmunds, R.M.L.I., as passenger. Capt. Gordon, R.M.L.I., gave instructional work on No. 34 to Lieuts. Seddon, Berne, Warrant Officer Brownridge, and Leading Seaman Russell.

Brighton.—Mr. Slack, on I.C.S. Tour, having fitted a safety float, flew from Shoreham along front to Brighton, performed evolutions over both piers and descended on race course, where machine was inspected by members of Corporation and a number of interested persons. He reascended and flew back over Preston Park, Portslade, and by front to Shoreham, where he gave further exhibition flights.

Windermere.—"Water Hen" took passengers, but flew heavily. Propeller not satisfactory. "Sea Bird" flew well with light passenger.

TUESDAY, September 3rd.

R.F.C. Central Flying School.—Capt. Fulton on Avro 404 twice with Capt. Broke-Smith for instruction. Capt. Broke-Smith one circuit and Lieut. Waldron two circuits on same machine. Lieut. Longmore, R.N., on Maurice Farman 403 once with Lieut. Young and Lieut. Martyn, twice alone on same machine. Capt. Broke-Smith on Bristol 408 with Asst.-Paymaster Trewin one flight. Lieut. Hartree and Capt. Salmond each alone on same machine. Capt. Gerrard, R.M.L.I., on Short 401 two flights with Lieuts. Courtney and Abercromby. Lieuts. Anderson, Winfield-Smith and Lushington each alone on this machine.

R.F.C., Farnborough.—Early, airship "Gamma" out several trips. Capt. Darbyshire on B.E.5, Capt Raleigh and Lieut. Carfrae on Bréguets. Capt. Raleigh one flight round Windsor. Mr. de Havilland on B.E.2 with passenger observing over Windsor. Lieut. Fox on B.E.3, Major Burke on B.E.5. Capt. Beor arrived from Salisbury on B.E.4, making good time. Lieut. Burchardt Ashton and Lieut. Wadham flying Deperdussins arrived from Salisbury. About 9.30 airship "Gamma" started for Whale Island, but about half way had engine trouble and returned after about 75 mins. About 11 a.m. Mr. de Havilland, with Lieut. Fox as passenger, did trip over Windsor. Lieut. Wadham, on Deperdussin, left for Salisbury. In evening, Lieut. Carfrae on Bréguet, Lieut. Fox on B.E.3, both flying well in very gusty wind.

Hendon.—At Grahame-White School, Lieut. Allen out on No. 1 biplane at 6.15 a.m. doing straights and half turns. Mr. Roupell got in some good practice on the 35-h.p. Anzani Blériot, doing some good straights and landings, and later doing a circuit at about 40 ft.

At W. H. Ewen School, Messrs. W. H. Ewen and Sydney Pickles instructing pupils on Caudron when fog lifted; 7 a.m., Messrs. Sutton, Edmund, Apcar and J. H. James flying. M. Baumann out with school monoplanes Nos. 1 and 2 on which Messrs. Conran and H. James and Lieuts. Bayly and McMullen made flights. After breakfast, Mr. Ewen on 35-h.p. Caudron. Mr. Sutton made several good flights.



Mr. Sabelli, as he flies the fast little Hanriot. One of the best machines in this country.

Messrs. James, Conran, Warren, Gist, Lieuts. Bayly and McMullen put in further work. Later Mr. Ewen took several pupils up for instruction in two-seater.

At Deperdussin School, in morning, Lieuts. Tucker and Hawker, Messrs. Andrews and Spratt doing straights on taxi No. 2. Messrs. Phelps, Whitehouse and Durand rolling on taxi No. 1. Cadet Robinson straights up to 50 ft. on brevet machine. Mr. Gill trial run on racer. Lieut. Hawker ran into Mr. Grahame-White's Sommer biplane, breaking tail of latter, broke own propeller and burred up front end bearing of engine.

At Bleriot School, Mr. Hall first out in morning, and soon after 6 went for second half of brevet, which he accomplished in good style, getting to 300 ft. for altitude test, observed by Messrs. Gill and Noel. Messrs. Sacchi, Welburn, Teulade and Clappen then out on L.B.3 for circuits and straights, and Mr. Reilly rolling on L.B.1.

Brooklands.—At Avro School, Mr. Simms on school Avro flying for 20 mins. in morning.

At Hanriot's, Mr. Sabelli circumnavigating Byfleet and environs for 20 mins. arousing the inhabitants for breakfast.

At Vickers School, early, Messrs. Geere and Barnwell and Capt. Stott making straights and curves on No. 3 After breakfast Mr. Macdonald on No. 6 out for a wide circuit. In evening Mr. Macdonald out for a short time in nasty wind.

At Bristol School, Mr. Merriam on biplane. Mr. Hotchkiss with Lieuts. Parker and MacClean, "Capt." Penfold, and Capt. Gibbon. Mr. Merriam with Mr. Payze, Lieuts. MacLean, Pretyman and Reed, and Turkish Lieuts. Safet and Ali. Capts. Miller and MacDonell, Lieuts. Carmichael, Hanlon, and Glanville, and Mr. "Darracq." Mr. Summerfield then went for brevet, flying steadily and landing each time within 10 yards of mark. Mr. Cheesman also went for brevet, doing first half well at about 200 ft., but when doing last right-hand turn of second test his engine petered out and he landed on the track, carrying away telegraph wires and breaking some chassis struts. Mr. Merriam out on Anzani monoplane, followed by Prince Cantacuzène.

Eastchurch.—Lieut. Parke, R.N., flew No. 2 to Chatham and back, landed, and then restarted with Eng.-Lieut. Briggs, R.N., as passenger for Deal and Dover. Capt. Gordon, R.M.L.I., flew the Henry Farman several times round the island.

Windermere.—Windy. Mr. Stanley Adams took "Water Hen" out in evening to test new propeller.

WEDNESDAY, September 4th.

R.F.C., Farnborough.—In evening weather good, but wind very gusty. Mr. de Havilland on B.E.2, with Major Broke-Popham as observer, and Lieut. Fox on B.E.3, with Lieut. Charteris as observer, left for Thetford. M. Bonneau several flights on new 28-h.p. Nieuport machine flying well.

Hendon.—At W. H. Ewen School, Mr. L. Russell joined and had first instruction in controls.

Brooklands.—At Bristol School, Mr. Hotchkiss with passenger, but wind too gusty for further work.

Brighton.—Mr. Slack, continuing I.C.S. demonstrations, flew over Worthing to Goring and back over Findon to Shoreham. Later, he flew along Brighton front to Rottingdean and back inland, coming to sea front again across Portslade.

Eastchurch.—Capt. Gordon, R.M.L.I., flew T.5 (70-h.p. tractor biplane) preparatory for manœuvres.

THURSDAY, September 5th.

R.F.C., Farnborough.—Early, in strong wind, Lieut. Mackworth several flights on B.E.6. First time this machine has been flown. Capt. Raleigh left for Thetford on 100-h.p. Bréguet with Lieut. Wanklyn as observer, arriving safely. In evening, Lieut. Mackworth on B.E.6, taking passenger. Mr. Cody out on biplane with passengers.

Hendon.—At W. H. Ewen School, Messrs. Conran, H. James, L. Russell and Lieuts. Bayly and McMullen out at 5 a.m. and put in practice before wind rose.

At Deperdussin School, in morning, Messrs. Phelps and Whitehouse out rolling on taxi No. 1. Nasty side wind, but Mr. Whitehouse made excellent progress. Mr. Gill four circuits on racer.

Brooklands.—At Bristol School, Mr. Merriam with Mr. England for straights. In evening Mr. Merriam testing with Capt. Gibbon as passenger.

Aberdeen.—Mr. B. C. Hucks, having been prevented by bad weather from flying to Balmoral, flew from Aberdeen to Dunecht, Lord Cowdray's place, about 11 miles away.



Mr. Sydney Pickles, the Australian pilot who has recently joined Mr. Ewen at Hendon.

Brighton.—Mr. Slack attempted on I.C.S. Blériot to start from Shoreham to fulfil promise of landing at Broadwater. Weather was altogether too rough and he was terribly shaken about, so had to descend after about 18 mins. Anemometer at aerodrome registered some gusts as being in neighbourhood of 50 m.p.h.

Eastchurch.—Lieut. Parke, R.N., flew No. 2 to Broadstairs, leaving in the evening and returning after dark. At 6.30 a.m. Commander Samson, R.N., started for Hardwicke for the manœuvres on S.41, he landed at Henham, near Bishops Stortford, on account of weather.

Windermere.—A gale. Many visitors and would-be passengers disappointed. They relieved their feelings on the helpless aviator. For instance: "What's the use of a flying machine that can't stand a bit of a breeze?"

Stout Lady (poking tough fabric stained brown with oil, etc.): "Oh, I thought it was real copper, but it's only brown paper! No wonder they have accidents."

FRIDAY, September 6th.

R.F.C. Central Flying School.—Lieut. Abercromby on Avro 404 left school for observation purposes, but was forced down at Amesbury. Capt. Fulton flew machine back from Amesbury in the evening. Capt. Fulton once on Avro 405. Lieut. Waldron twice, Major Higgins and Capt. Alston each once on same machine. Unluckily Capt. Alston was caught in a squall at Andover and disabled machine. Lieut. Longmore, R.N., with Major Trenchard on Maurice Farman 403 one 45 min. flight, and Lieut. Martyn 45 min. alone on same machine. Lieut. Longmore, R.N., Major Trenchard and Lieuts. Shepherd and Cholmondeley each once on Short 402. Capt. Broke-Smith and Capt. Becke each twice, and Capt. Salmond and Lieuts. Hartree and Smith-Barry each once on Bristol 408. Capt. Gerrard, R.M.L.I., one long flight on Nieuport 409 for observations. Lieuts. Lushington and Winfield-Smith each once, and Lieut. Anderson with Lieut. Hubbard as passenger on Short 401.

R.F.C., Farnborough.—Early, Lieut. Mackworth on B.E.6, Capt. Reynolds on Maurice Farman, both with passengers, in strong wind. Both out again in evening several flights.

Hendon.—At W. H. Ewen School, pupils out 5.30 a.m. Lieut. Bayly and Mr. Eric Conran doing straights on monoplane No. 1, and Mr. Russell rolling. Mr. Ewen flying on 35-h.p. Caudron, after which Mr. Sydney Pickles made two flights on same machine, finding no difficulty in first flight on new mount.

At Deperdussin School, in morning, Lieuts. Tucker and Hawker, Messrs. Spratt and Phelps, and Capt. MacDonell all rolling on taxi No. 1. Mr. Gill 10 mins. on racer.

Brooklands.—Windy morning and evening.

At Vickers School, late evening, Mr. Macdonald on No. 6 made only flight of the day.

At Bristol School, 5 a.m., Mr. Merriam with Mr. England and Lieut. Abdullah.

Eastchurch.—In morning, Capt. Gordon, R.M.L.I., Lieut. Spencer Grey, R.N., and Lieut. Malone, R.N., started for Hardwicke on 70-h.p. Short tractor, 70-h.p. Deperdussin, and 100-h.p. Short triple tractor, in a 20-mile wind. Capt. Gordon landed at Grays through engine stoppage, Lieut. Grey landed owing to insufficient progress against the wind, then increased to 40 m.p.h., and in restarting damaged landing gear and one wing through running into a rut. Lieut. Malone landed at Upminster owing to failure of one engine.

Windermere.—Gusty. Only one short flight, further testing altered propeller.

Pert Damsel: "I agree with Canon Rawnsley. Your machines are great, ugly things. Don't you think so yourself, really?" Aviator: "Well, hardly. They look to me quite pretty, especially when they are flying." P. D.: "Pretty! How pretty? As pretty as ——?" with an arch smile.

Aviator: "Now then, don't fish." P. D.: "I don't fish with worms!"

SATURDAY, September 7th.

R.F.C. Central Flying School.—Capt. Fulton once alone and Major Higgins twice on Avro 404. Lieut. Longmore, R.N., with Capt. Risk one long flight on Short 402. Capt. Broke-Smith on Bristol 408 with Asst.-Paymaster Trewin one flight and Capt. Becke one solo on same machine. Capt. Gerrard on Short 401 two flights, one each with Capt. Risk and Lieut. Anderson. Lieut. Hubbard two solos and Lieut. Anderson once alone on same machine.

Hendon.—At Grahame-White School. School out at 5.50 a.m. Lieut. Allen and Mr. Wilson doing straights on No. 7 biplane, and Lieut. Small rolling and later doing long hops.

At W. H. Ewen School, pupils out from 5.30 a.m. till 7.45. Lieuts. Bayly and McMullen, and Messrs. Eric Conran, H. James and L. Russell on monoplane No. 1. Messrs. Apcar and J. H. James straights on No. 2 monoplane, and Mr. Edmund circuit on same machine. Afeter test flight by school instructor, Mr. Sutton made flights on 35-h.p. Caudron. Mr. Ewen out on 60-h.p. two-seater Caudron and took Messrs. Sydney Pickles and J. H. James for passenger flights. M. Galy, a French pilot of the Caudron, has now joined school staff.

At Deperdussin School, in morning, Capt. MacDonell and Lieuts. Tucker and Hawker all doing straight flights on taxi No. 2. Messrs. Phelps, Whitehouse, and Durand all rolling on taxi No. 1. Cadet Robinson straights on brevet. Mr. Gill two circuits on two-seater.

At Bleriot School, Mr. Sacchi out early doing straights on L.B.3 before wind rose. Mr. Hall tried his 50-h.p. Gnome Blériot single-seater in evening and was circling pylons in good style.

Brooklands.—At Hanriot's, Mr. Sabelli at 3 p.m. left on single-seater for Hendon.

At Spencer School, Mr. Spencer out early in evening, and continued making flights alone and with passengers till dark.

At Vickers School, Mr. Macdonald on No. 6 made a series of fine flights extending from 5.30 till after 7, during which time he was almost continually in the air. Mr. Knight on Farman made an excellent flight with Mr. Geere as passenger, and then took over No. 5, on which he proceeded to emulate Mr. Macdonald, affording a spectacle not hitherto seen at Brooklands of two Vickers monoplanes in the air for a long time together.

At Sopwith School, Mr. Perry made numerous flights on Farman during the evening.

Mr. Merriam with "Capt." Penfold, Mr. Payze, Capt. Price, and Lieut. Parker.

Mr. Bendall for short flight, the first time since his nasty accident some months ago. All glad to see him flying again. Mr. England also out. Mr. Merriam with Mr. Cheesman, and latter then for second half of certificate, but came down owing to wind. Capt. MacDonell and Lieuts. Carmichael and Glanville flying alone. In evening Mr. Merriam alone, and then Mr. Cheesman again went for second half of certificate, which he took. Mr. Merriam testing and then Capt. MacDonell, Lieuts. Glanville, Carmichael, Penn-Gaskell, and Mr. England all doing flying. Mr. Merriam up with Capts. Gibbon and Price, and latter alone. Mr. Merriam with Lieuts. Loultcheff, Parker and MacLean, and Mr. Payze.



M. Baumann, of the Ewen School, the first pilot to take his certificate on a Caudron.

Brighton.—In fulfilment of promise, Mr. Slack, on I.C.S. Blériot, flew from Shoreham to Worthing over Lancing and Sompting, coming down on Broomfield Meadow at Broadwater. Received magnificent reception from local I.C.S. students, Territorials, Boy Scouts, and all inhabitants, together with crowds of Worthing people. After reception he flew over to Goring and came back past Worthing to Shoreham.

Dublin.—Short exhibition flights by M. Salmet on Blériot. After which the start for the race to Belfast, Mr. Valentine and Lieut. Porte, R.N., on Deperdussins, and Mr. Astley on Blériot, getting away, and Mr. Arthur on Bristol making a sporting attempt to do so.

Eastchurch.—News to hand that Lieut. Malone, R.N., restarted and arrived Hardwicke, being the first there, followed by Commander Sampson, R.N. Lieut. Parke, R.N., flew No. 2 at aerodrome, giving passenger flights to various members of Service. In evening, Lieut. Parke, R.N., went up after dark with passenger and alighted by means of bonfires.

Windermere.—Mr. Stanley Adams taking "Water Hen" out with passengers, and flying well.

SUNDAY, September 8th.

Hendon.—Exhibitions as usual.

Brooklands.—At Bristol School, Mr. Merriam testing and then with Mr. England and the three-year-old son of Lieut. Crossman for couple of straights in bad wind.

Brighton.—Mr. Slack made several exhibition flights from the aerodrome on I.C.S. Blériot, going sometimes to Worthing and sometimes to Brighton.

The Week-end at Hendon.

Saturday at Hendon was less propitious to flying than usual. The wind was high and very gusty. According to the pilots the air was in a peculiar condition, with a large number of unexpected remous at 3.30 p.m., before any flying had been done in the Aerodrome.

Mr. Sabelli arrived from Brooklands on a 50-h.p. Gnome Hanriot. His time for the 20 miles was 25 mins., as he had to fly against a strong head wind. Shortly after his arrival M. Desoutter made a flight on the G.B. Blériot, followed by M. Noel on the 80-h.p. Farman.

The cross-country handicap race was run off shortly after five o'clock between M. Noel (80-h.p. Gnome Farman), who won; M. Sabelli (50-h.p. Gnome Hanriot monoplane) second; and M. Desoutter (50-h.p. Gnome Blériot).

After this race Mr. Gates made a high flight on the 80-h.p. Farman, landing finally owing to the air intake of the car-

burreter shutting off. M. Nardini took Captain Tyrer for several circuits on a 60-h.p. Anzani British Deperdussin monoplane.

At six o'clock the first heat of the speed handicap was run off between M. Desoutter (Blériot) and M. Nardini (Deperdussin). The latter retired after two circuits owing to slight engine trouble, some mechanic having shut off the oil. The second heat and the final were postponed until next week owing to the darkness.

In the dusk M. Desoutter made a straight flight on the new Grahame-White monoplane with a silenced 35-h.p. Anzani engine (Y type). He was highly satisfied at the behaviour of the machine. Mrs. Stocks flew several circuits at an altitude of 200 ft. on the 35-h.p. Blériot.

Sunday was worse as regards weather, and the only flights were made by M. Desoutter on the G. B. Blériot and M. Noel on the 80-h.p. Farman. The latter also gave several passenger flights.—C. T. S.

On Thursday evening, September 26th, there will take place at the London Aerodrome, Hendon, one of the most remarkable aerial demonstrations of the year. The usual Thursday exhibition flights will be given from 3 o'clock in the afternoon, and at 8 p.m. (weather permitting) the first illuminated flying fête will commence.

The lighting effects will be carried out on a most extensive scale. Each of the aeroplanes, which will be piloted by well-known aviators, will carry a powerful searchlight, in addition to side and rear lights, and will be outlined with hundreds of tiny electric lights supplied from portable accumulators carried in the machine. On the roofs of the hangars there will be powerful searchlights to guide the fliers, and the pylons will also be brilliantly illuminated. The various enclosures will also be fitted with coloured lanterns, and the aerodrome will present a remarkably novel scene. During the evening there will be a display of fire-balloons and fireworks, illustrating "War in Air," and the effect should be extremely interesting.

Amongst the aviators who will pilot the illuminated machines are Messrs. C. Grahame-White, R. T. Gates, Marcel Desoutter, Lewis Turner, Jules Nardini, Louis Noel, and J. L. Travers. On the Saturday following (September 28th) the naval and military meeting will be held.

The Royal Aero Club.

At the committee meeting on the 3rd inst. the following new members were elected:—Engineer-Lieut. Gerald W. S. Aldwell, R.N.; Thomas S. Apcar; Capt. Lionel L. Atherton; J. J. Beer; Eustace R. Berne; Capt. A. J. P. Coke, 22nd Cavalry F.F.; Major C. D. Dawes, I.M.S., 39th Garhwal Rifles; Armand Deperdussin; Capt. P. T. Etherton, 39th Garhwal Rifles; Lieut.-Col. William F. Everett, Australian Light Horse; H. A. T. Fairbank; Lieut. E. C. Kenny, 39th Garhwal Rifles; Capt. W. G. S. Kenny, 39th Garhwal Rifles; Capt. J. T. H. Lane, 39th Garhwal Rifles; Capt. F. G. E. Lumb, 39th Garhwal Rifles; Major H. M. Maclier, 39th Garhwal Rifles; Capt. C. Mellor, R.E.; Lieut. J. Morrogh-Bernard, 22nd Cavalry F.F.; Lieut. J. H. Park, 22nd Cavalry F.F.; Capt. A. W. Robertson-Glasgow, 39th Garhwal Rifles; Major A. B. Souter, 21st Cavalry F.F.; Norman C. Spratt; Major G. H. Taylor, 39th Garhwal Rifles; Lieut. V. Wadham; and Lieut. F. F. Waldron, 19th Royal Hussars. Total membership to date, 1,430.

The following aviators' certificates were granted:—276, Staff-Sergeant Wiliam Thomas (Short biplane, Central Flying School, Upavon); 277, Capt. Robert Harry Lucas Cordner, R.A.M.C. (Bristol biplane, Central Flying School, Upavon); 278, Richard Harold Barnwell (Bristol biplane, Bristol School, Brooklands); 279, Capt. the Hon. Claude Brabazon (Bristol biplane, Bristol School, Brooklands); 280, Lieut. Phillip Bennet Joubert de la Ferté, R.F.A. (Bristol biplane, Bristol School, Brooklands); 281, Major Edward Bailey Ashmore, M.V.O., R.F.A. (Bristol biplane, Bristol School, Brooklands); 282, Lieut. Claude Grenville Shephard Gould, R.G.A. (Bristol biplane, Bristol School, Brooklands); 283, Lieut. P. H. L. Playfair, R.F.A. (Bristol biplane, Bristol School, Brooklands); 284, Lieut. F. A. Wanklyn, R.F.A. (Bristol biplane, Bristol School, Brooklands); 285, Walter Laurence Brock (Deperdussin monoplane, Deperdussin School, Hendon), subject to permission of Aero Club of America; 286, Thomas O'Connor, engine-room artificer, Royal Navy (Short biplane, Central Flying School, Upavon); 287, Edouard Beaumann (Deperdussin monoplane and Caudron biplane, Ewen School, Hendon), subject to permission of Aero Club of Switzerland.

The following aeronauts' certificates were granted:—27, Sergeant B. Scovell, R.F.C.; 28, Sergeant A. Barnes, R.F.C.

The following airship pilot certificates were granted:—13, Sergeant B. Scovell, R.F.C.; 14, Sergeant A. Barnes, R.F.C.

The Royal Aero Club special certificate was granted to 7, Lieut.-Col. H. R. Cook, R.F.C.

The following resolution was unanimously passed:—

Resolved that Mr. S. F. Cody be congratulated on his great success in the Military Aeroplane Competition, held on Salisbury Plain during the month of August, 1912, in which he obtained the first prize in the competition "Open to the world for aeroplanes made in any country," and also the first prize in the competition "Open to British subjects for aeroplanes manufactured wholly in the United Kingdom, except the engines."

It was further resolved that the Royal Aero Club's gold medal be given to Mr. S. F. Cody in commemoration of these events and in recognition of his successful pioneer work in aviation.

The Home Secretary has informed the Club that he proposes to call a conference at the Home Office, about the middle of October, to discuss the question of the control of aviation over London and up the Thames, and has invited the club to send representatives to the conference. The following representatives have been appointed:—Prof. A. K. Huntington, Mr. F. K. McClean, Mr. A. Mortimer Singer, Sir Charles D. Rose, Bart., M.P.

The Royal Aero Club has forwarded to the Australian Commonwealth a cheque for £10 10s. towards the fund now being raised on behalf of the widow of the late Mr. C Lindsay Campbell.

Harold E. Perrin, Secretary.

The Gordon-Bennett Aviation Race.

The Gordon-Bennett race was run off on September 10th at Chicago, and resulted in a victory for M. Jules Védrines on a 140-h.p. Gnome Deperdussin monoplane. He completed the course of 124.8 miles in 1 hr. 10 mins. 56.85 secs., which represents a speed of 105 miles an hour. The result, barring accidents, was a foregone conclusion. One is glad to see the cup return to France in the absence of British representatives.

Mr. Loraine's Over-Sea Journey.

On Wednesday last Mr. Robert Loraine sailed for America, where he is starting an extended tour with Bernard Shaw plays. The date on which he sailed is the second anniversary of his famous flight on his old Farman biplane across the Irish Channel, when he landed in Dublin Bay, a flight which was certainly the pluckiest that had ever been made and was the world's record for a flight over water. It is interesting to note that Miss Irene Milton, Mr. Loraine's secretary, has made a collection from among the company Mr. Loraine is taking to America, and the proceeds are being handed to the Aerial League's National Shilling Fund. Everyone will wish Mr. Loraine and his colleagues all the success they deserve.

A New Height Record.

M. Roland Garros has once more appropriated the world's record by flying to a height reported as 16,400 ft. on Friday last. He started from the aerodrome at Trouville in a strong wind and reached 6,500 ft. in ten minutes, by which time he was considerably above the clouds. Up to 13,000 ft. he experienced but little trouble, but then the intense cold and rarefied air began to tell, and he had recourse to an oxygen tube, and it was with difficulty that he reached his previous record. However, he kept on gamely and managed to reach the height mentioned. On the way down his motor stopped at about 15,000 ft., so that he had to glide the rest of the distance, and landed about 12 miles from the starting point.

A Hydro-Monoplane in Switzerland.

The Aeroplane has received from Miss Busby some interesting photographs of René Grandjean flying a hydro-monoplane over Bonigen, near Interlaken. Miss Busby, who describes the machine as the smallest she has ever seen, says that on the first day Grandjean flew splendidly for 20 minutes, but that on the second day his engine went wrong, and he came down into the lake and had to be towed home. According to this lady, the Swiss crowd was considerably wanting in enthusiasm, and says she is not surprised that foreign aviators are pleased with the reception they receive when they come to England. Curiously enough, the handbills advertising the flying make no mention of the type of machine, which appears to be a transformed Blériot.

An Inside View of the Military Competition.

[The Editor disclaims all responsibility for the following article, which is written by one who watched and worked hard throughout the competition. His opinions are worth having, even if one disagrees with many of them.]

Looking back on the military trials from a British point of view, one's first recollection is of a vast expanse, with a foreground of mud, and a middle distance and background obscured by sheets of rain wherein a distraught crowd of British constructors, their pilots, and mechanics strove unavailingly to persuade alleged aeroplanes to fly. Further consideration fortunately modifies the aspect, and a few brighter spots become visible, but the general shade is one of gloom.

Those members of the British industry represented at Salisbury may be divided into two main groups. The first consists of those concerns who are blessed with considerable working capital, and who may be further subdivided into those who build original machines and those who manufacture well-known foreign designs under licence. The latter we may neglect at present.

Considering the resources owned by this first group of firms, there is little to be said in extenuation of their performances. Most of the machines produced in this group were possessed of excellent features, and, regarded as experimental machines, were unquestionably good. But practically none of them were machines which any firm possessed of sufficient capital to build machines as experiments, and with any pretence to a reputation, ought to have entered for the trials.

The Success of the Small Maker.

Under the second chief category comes the individual designer, possibly backed by a small syndicate, but practically devoid of working capital. If excuse is thought necessary for the performance of this class, the excuse is there, and plenty of it. With probably less available capital behind the whole group than any single member of the other class can command, one of their number, Mr. Cody, has beaten all competitors, British and foreign, and has deservedly carried off more prize-money than all the rest of the competitors put together, while a second, Mr. A. V. Roe, has produced the only real novelty at the trials, in the shape of a machine adjudged by a rival constructor to be the finest flying machine present. That the Avro does not appear in the prize-list is surprising, but one can understand that the Judges found it difficult to pass over machines which had actually fulfilled the specified tests in favour of one that failed in two of them. It is noteworthy, however, that, although the Avro took 9½ min. to climb the first 1,000 ft., it also climbed 900 ft. in 2¼ min. in the same flight, which undeniably suggests that atmospheric conditions may have had more to do with its failure in the first 1,000 than any incapacity on the part of the machine. Further, it failed to get out of plough at a time when Mr. Cody also failed (although the Cody was not trying officially), and were it not for the delay caused by Lieut. Parke's unfortunate smash at the commencement of the trials, the Avro, given more opportunity, would have made a better show. At all events, Mr. Roe has shown the possibility of producing an all-weather machine which provides for the comfort of pilot and observer.

Misfortune or Misjudgment?

But if the Avro was the victim of undeserved misfortune, what is to be said for the Martin-Handasyde and the Flanders? It is true that the Martin-Handasyde was an experiment as regards engine, and the Flanders as regards engine and machine. But what is the manufacturer to do who cannot afford to build experimental machines, as experiments pure and simple, when he has to build a machine such as was here demanded, but make an experiment of it in one way or another? Both experiments were reasonable experiments. The Chenu engine is supposed to have a good reputation in France, and when it did run for a minute or two showed the "M.-H." to be first-rate.

The A.B.C. was a case of an English engine-maker this time who was forced to make an experiment for the trials. For the moment the experiment failed. There is little doubt that both the Flanders machine and the A.B.C. engine will prove their worth in the near future, and the constructors of both deserve every praise for the plucky effort made under difficulties.

Speaking generally, the small British maker, forced by lack of financial support to put whatever machine he could get ready into the competition, has made a show which does him no discredit, but much to the contrary, and the use of chassis-struts as implements of correction should be limited to the backs of the responsible managers of the few British firms who, having sufficient capital either to have made all the experiments necessary, or not yet having had time to complete their experiments, could have afforded to lie low until they had arrived at a satisfactory result. These have discredited the whole industry by putting forward their experimental work as though it were the last word in aeroplane design.

The British Characteristic.

Taking the British machines as a whole and comparing them from a technical aspect with those designed in France one striking difference appears. English designers have been wont to gibe at the general run of French machines as being hopelessly weak and unsafe, and at first glance the average British machine has the appearance of much greater strength and solidity than the average French machine. A considerable acquaintance with the performance of both French and English machines, working under the same conditions, leads to the conclusion that the French designer has secured the necessary strength by careful design, *i.e.*, by putting material just where it is required, and by distributing stresses over a large number of small members, whereas the average English designer, observing that his machine may have a certain big stress to resist, puts in a massive baulk of timber to withstand it. The result is that the French machine usually smashes in a much more comprehensive manner under a big shock than its English rival.

Except for school work it is doubtful whether this matters seriously, and in any case a properly rebuilt machine is preferable to a patched one. The lack of local strength in the individual members of many French machines has at least one serious advantage, in that it is possible to smash quite a large portion of the machine without risk of unduly stressing the remainder, while one has seen wheel-bases on British machines which look as though their forcible removal could scarcely fail to dangerously strain the whole fabric.

Another Moral.

The British constructor has at his disposal the best materials in the world; he can command workmanship at least equal to anything obtainable abroad, and he has brains. He has only to learn to use the three properly. And as to the last of these items, if he will recollect that the possession of an abnormal factor of safety against a stress that ought never to occur is not an important advantage in a machine that will not fly, he will have travelled some appreciable distance towards the haven of our desires.

For Officers of the Royal Flying Corps.

The 1912 edition of "Fighting Ships" has just come to hand, and impresses one more than ever with Mr. F. T. Jane's encyclopedic knowledge of naval matters. The book is of more than usual interest to aviators at present, in view of the fact that those who are joining the Royal Flying Corps Reserve will have to acquire a working knowledge of the ships of various nations, and Mr. Jane's book is the standard work employed in both Services for this work.

Not the least interesting part of the book from the aviator's point of view are the maps of various harbours and dockyards in different countries. Before long a number of our aviators are sure to be doing long flights into foreign countries on hydro-aeroplanes, and it may be just as well for them to have some sort of idea of where they are going if they happen to strike a naval port of a foreign Power, for there is no reason to believe that an aviator descending in a German dockyard would be treated very much better than a tourist who is observed photographing barges in the same neighbourhood from a pleasure yacht. The knowledge shown in the German maps ought to be quite enough to earn their author three months in the first German fortress he goes near. The illustrations of the book are better than ever this year, and must interest even the most confirmed landsman. Incidentally, they show how much designs of ships will have to be altered if they are to accommodate aeroplanes of the present type on their decks either for launching or landing.

The Manchester Aerodrome, Ltd.

An extraordinary general meeting of this company was held on Friday, August 30th, for certain matters of extreme importance, which, however, were not mentioned in the notice convening the meeting. The company was formed about March, 1911, since when shares to the extent of £382 have been taken up. The directors had no report to make to the meeting, but the accounts as they will stand quarter ending September were handed round showing a balance in hand of £48 10s. 4d. The first subject on the agenda was the advisability of continuing the lease or otherwise, and it was decided to keep on with it. It will be seen that if the directors pursue the same cautious policy of doing nothing as in the past the funds will be sufficient to enable the company to carry on for quite two months longer, and possibly three.

What Happened to the Bréguets.

Bréguet Aeroplanes, Ltd., write:—It must have appeared strange to many of your readers who are not aware of the exact circumstances that two machines of such acknowledged reputation as the Bréguet, having been entered for the military trials, should have failed to go through their tests, particularly in view of the success attained by them in the French military trials last year, and we should be glad if you would allow us this opportunity of making an explanation.

At the time of the promotion of the English Bréguet Company one of the foremost plans was to enter two machines entirely constructed in England for the trials which have just taken place. Inevitable delay occurred in the formation of the company, the selection and equipment of a suitable factory, and it was found impossible to start work on the machines until July 5th—that is to say, little more than three weeks before the last day for delivery at Larkhill. It was then decided to enter a French machine in place of one of the British ones, and leave to do this was obtained. Mr. Moorhouse, who was to bring this machine across, was delayed by weather until almost the end of July, and when he crossed the conditions were so bad on this side that he had to descend quickly on to an unsuitable landing ground, with the result that the machine was put out of action as regards the trials, although a record had been established in the carrying of three passengers across the Channel.

Difficulty in obtaining the necessary material over here in the short time remaining delayed the completion of the British machine, and it had to be sent off at the last moment absolutely untuned and untested. The machine arrived at Larkhill not without further delay and mishap due to a broken axle to the contractor's lorry, etc. After a period of tuning and general adjustment it was found that the propellers were apparently too large for the engine, for the reason subsequently explained. New propellers were obtained, and the machine began to show proper form. It then became evident that the cause of the trouble was that the bevel transmission gear was so new that it had not begun to run sweetly. From that time every hour of running added considerably to the number of revolutions.

A few days before the competition closed, Moineau, the pilot, was quite satisfied with the machine, and would have gone through the tests at once had it not been for another untoward occurrence—viz., the working loose and destruction of the pinion on the magneto shaft. We at once sent to Paris for another, but by the time it had arrived and was fitted the competition was declared closed.

It has been a great disappointment to us to have been prevented by these successive misfortunes from going through the tests; we shall, hope, however, shortly to have an opportunity of demonstrating the capabilities of the machine entered by us elsewhere.—(Signed) Breguet Aeroplanes, Limited.

Everyone recognises the bad luck from which these machines suffered, but the good flying now being done by Bréguets belonging to the Flying Corps and the past performances of the machines remove any doubts as to their future doings.

The Question of Wire.

In no section of aeroplane making is there need for greater care than in the selection of the wire used either for stay wires or controls, and in nothing is it more difficult to control any variation in quality, consequently when one has once taken to buying wire of a certain make one is more or less in the hands of the maker, and has to depend on him to maintain the standard of the material used and of the methods of manufacture, for one may have badly-flawed wire made of the best material simply through carelessness in the making. Hence the wisdom of finding a good firm with a sound reputation to uphold, sticking to that firm when found. The "Thistle Brand" wires made by Frederick Smith and Co., of Halifax, have over fifty years' reputation for high-class work behind them, and so can be relied upon to turn out good work—in fact, such a firm cannot afford to do anything else.

Writing on the subject of wire in general, Mr. G. P. Smith, director of the firm, says:—

"We are offering no new specialities in the aeronautical trade, as we are merely wire manufacturers. Our 'Thistle Brand' aeroplane wire still keeps up its good reliable qualities—in fact, we think the wire we are now turning out is tougher and more reliable than what we at first made.

"You asked us in a previous letter how one may judge in a simple way whether a wire is good or bad. Of course, all the wire that we send out is tested by special testing machines, and nothing is sent out from here but what gives the specified tests. A good way of testing a piece of wire for soundness is to bend the wire in a loop and fix the same in a vice and twist the wire round itself.

"Another way is to fix one end of the wire in a vice and bend the other end round, so as to make a close bend, or snarl. Any wire which will stand these tests is certainly not brittle. If the wire is very tough it will stand bending into a sharp bend and opening again straight. The tougher the wire the more sharp bends it will stand. Perhaps these simple tests might be of interest to your readers."

These remarks refer, of course, to ordinary solid-drawn wire, but this firm is equally renowned for stranded cable of all sorts, from ordinary small sizes up to colliery ropes and wire for submarine cables, so that their experience is not only long but varied.

A Good Location for Hydro-Aeroplanes.

Handley Page, Ltd., advise us that they are prepared to treat for the sale or lease of their works at Barking, as they are at present engaged in moving to more commodious premises at Cricklewood, which they have taken in order to be near the school which they propose to open at Hendon. The works at Barking are particularly well suited for anybody who wishes to experiment quietly with or build hydro-aeroplanes, as it is situated alongside a reach of the Thames about a mile long by half a mile wide, and it is free from the ordinary river traffic, as the deep-water channel runs along one side of it, the water on this reach being only ten to twenty feet deep at high water. The building consists of a main building shop 100 ft. by 55 ft., with two minor shops, each 60 ft. by 30 ft., and two offices, one 40 ft. by 20 ft. and the other 35 ft. by 20 ft.

Advice on Filing Patents.

Those who are thinking of taking out patents—and their name is legion in these early days of aeroplanes and aero engines—will do well to obtain a little book entitled "How to Take Out Patents." This book has been written by Mr. A. E. Edwards, Fellow of the Chartered Institute of Patent Agents. It is sold at 2s., and is an excellent investment in that it is likely to give the would-be inventor a good many points which he would otherwise waste in going about a job without having a knowledge of how patents are handled.

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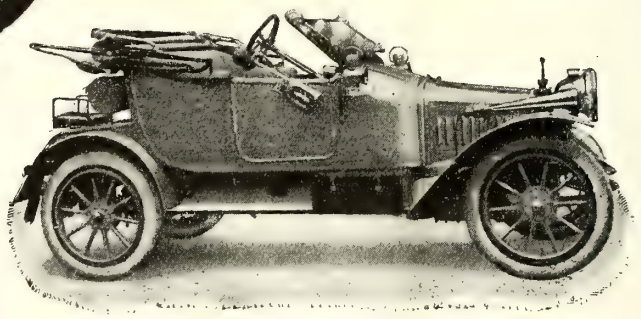
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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Ailfron, London.

The Question of Flying on Duty.

There seems to be at the present moment an unfortunate inclination in certain quarters to exalt the Service aviator into the position of some special kind of hero. This idea was of course entertained of all aviators more or less by everybody in the very early days of aviation when everyone who flew was regarded as a man of extraordinary daring. When the Royal Flying Corps was founded, or even earlier, certain people in high positions spoke glowingly of "opportunities for doing daring deeds," and so forth, presumably under the mistaken impression that these opportunities would tempt officers to take up flying in order that they might be acclaimed as heroes. Naturally, nothing could be further from the spirit in which the right kind of soldier does his work, and it speaks well for the high level of character in the Navy and Army that the Flying Corps is, on the whole, singularly free from anything in the nature of theatricality, so far as the behaviour of its members is concerned, though as keen on its work as the most exacting commander could wish.

Actually, the reasons why so few officers took to flying in the early days of the mercifully-defunct Air Battalion were that primarily any officer had considerable difficulty in obtaining leave from his commanding officer to apply for appointment in the new corps, that no inducements of a tangible nature—in the way of promotion and pay—were held out to him, and that the War Office was, wisely enough, not anxious to make numerous appointments when there were no machines for the appointees to fly. As soon as these drawbacks were removed applicants poured in, as they are doing at present. At that period, also, the Admiralty had no definite aviation scheme in hand, so there was no room for the appointment of naval officers.

To-day the position is very different. Appointments to the military wing, at any rate, are being made rapidly. Machines are being bought in very fair numbers, and would be bought more largely still if the makers would deliver those already ordered. As a result, we have at the moment a considerable number of experienced pilots who are capable of flying the many different types of machines in very bad weather.

Unhappily, several members of the Flying Corps have been killed lately, and though one naturally grieves for the loss of personal friends, there is no need to try and make out that, because of these deaths, the Service aviator is any more a hero than are the unfortunate privates of the line who are dying of pneumonia through exposure on manœuvres, or the artillerymen who get thrown off limbers and run over by their own guns, or even than the cavalryman who dies from being kicked in stables. Each and all takes his risk in the King's Service, and if a man is not prepared to take his risks he has no right in either Service.

A Parallel Case.

There was a time in the Navy when submarines were manned by volunteers, who were acclaimed by well-meaning journalists and others as heroes of the highest sort. Those in control of this branch of the Service soon stopped this attitude by the simple process of making submarine appointments by selection, and to-day one hears very little of "these heroic officers," though in truth submarine work is quite as dangerous as, and very much more unpleasant than, flying.

The foreman of the coroner's jury at Hitchin spoke truly and fairly when he said that "if a thousand officers are killed flying there are ten thousand ready to take their places." The phrase itself sounds a trifle theatrical, but if one takes it as a bald statement of fact, it is essentially true. Similarly, though the phrase attributed to Major Burke of the Royal Flying Corps—"We fly when it is our duty to fly"—has a theatrical ring about it, it is none the less the unvarnished truth. So true is the first phrase that the officer who is perpetually getting himself seconded for special duty, especially if it be of a dangerous nature, and who leaves his regiment, is apt to become a trifle unpopular because his doing so is depriving other, and possibly better, men of their chances of distinction, and, be it understood, distinction does not mean, in these cases, the publication of a column—with photograph—in halfpenny papers of the kind alleged to be illustrated.

The Taking of Risks.

At the same time, the willingness of all ranks in both Services to take risks does not mean that unnecessary risks need be taken by the pilots themselves when flying, nor need the pilots be allowed to take unnecessary risks by those who decide what machines they are to fly, and when and where they are to fly them.

A thoroughly-trained officer-pilot and his observer, especially the observer, are worth so much in hard cash to the Services in time of war, and, though it sounds brutal, they must be treated on that basis. In time of war their lives are worth just what it is worth spending on the chances of getting certain information. It seems probable that in action an officer commanding aeroplanes will not send his best men and machines on an obviously risky trip in search of information which is merely desirable, but not vital. On the

other hand, if information of the highest importance is required, the best men will be sent, even if it be to almost certain death, and they will go quite cheerfully. At any rate, their lot is no more unpleasant than that of the private of the line lying on his face on an open plain and heaping little stones in front of the crown of his head in the hopes that they may deflect a bullet, and it is certainly more pleasant than that of the engine-room ratings on a destroyer in action.

But, because of the high monetary value of good pilots and observers, it behoves those responsible for the purchase of machines to ensure that no risks are taken in the design or construction of the aeroplanes or their engines—on which subject more may be said later—and though in truth the greatest care is certainly taken to select only the best and soundest machines, a certain number of accidents must happen, just as they happen to motor-cars, or to any other kind of vehicle.

At the moment a greater danger of waste of valuable assets is caused by the recklessness of the fliers themselves. Aviation attracts two distinct types of men. One type is the careful, steady-going student of flying who believes in the future of aerial locomotion, and sets about his work with the caution engendered by a recognition of the inherent risks, and a belief that the knowledge he acquires is of greater value to the community while he is alive than if he is dead. This type of man very seldom comes to grief, though certainly a few have been killed in genuine, unavoidable accidents.

The other sort is the born adventurer, the man who is always game to take on anything that is dangerous, and who is apt to believe that death itself is the greatest adventure of all. He is often a fine soldier, and it is of such stuff that the pioneers of all ages have been made. Civilian aviators of this type have made valuable discoveries as to the possibilities of aeroplanes, occasionally deliberately by trying dangerous experiments, but more often accidentally when they have simply been playing tricks. In time of war such a man is of the highest value to the Services, but in time of peace he is apt to be troublesome, because he is expensive, and because, if he kills himself and possibly an observer as well, he draws the unwelcome attention of the outside Press to the Flying Corps.

Home-made Repairs.

There is yet a third type of man who is likely to be unnecessarily costly. That is the man who, while a keen and useful officer and quite a good flier, is ignorant of the mechanism of his machine, and so unwittingly takes unnecessary risks through anxiety to do his duty. The writer knows of cases where Service aviators of this type have damaged their machines in landing in the course of a cross-country flight, and have proceeded to make a jury-rigged repair on the spot, aided perhaps by a half-trained Service mechanic who was with them as passenger, or by a local motor-repairer. Such a botched repair does not matter in an aerodrome school machine, because it probably only flies for a few minutes, and if anything is going wrong it is noticed the next time it lands; but on a big cross-country flight, where the machine may not land for an hour or two, the repaired portion is likely to work loose and cause disaster.

In one particular case of this sort, of which the writer knows, a real aeroplane mechanic was sent to the job, and to his horror found the machine practically hanging together by threads, the warp cables frayed, the guides worn so that the cables might jump out and jamb at any moment, important working parts rusty and slack, pieces of other machines which did not fit made to do duty somehow, and things generally in a state which made flying the machine not only difficult, but exceedingly dangerous. The officer-pilot knew that all was not as it should be, but the machine got along all right, and he was much more concerned about getting to his journey's end as ordered than he was about the risk of flying a machine in such a state. That attitude of mind is entirely praiseworthy on active service, but even then it may waste a couple of valuable men, and in time of peace it is pure extravagance.

A False Economy.

A false economy, which is more or less forced on both wings of the Flying Corps, is due to the fact that wages cannot be paid which will allow of the enlistment of the highest class mechanics. Those at present employed—engine-room artificers, "air-mechanics," and so forth—are thoroughly good workmen, but they have simply not had the experience needed for first-class aeroplane work. Therefore, over and above them, a highly-trained engineer is needed who is able to say with certainty whether a given repair job is properly done or not. Repairs done at the Royal Aircraft Factory, in its present state of efficiency, are as nearly perfect as possible; but equal perfection is needed in every little job done in the sheds of the Royal Flying Corps at Upavon, Lark Hill, Eastchurch, Harwich, or elsewhere, and it is in defects in the small repair jobs that danger lies quite as much as in bad design or construction of new machines. Doubtless those in control of the Flying Corps will overcome this trouble as they have overcome so many others; but at the moment the trouble exists, and the only possible solution which suggests itself is that a number of officers of scientific mind, who would not be flying officers at all, should be appointed, after a thorough course of training in aeroplane and motor factories, to inspect and pass each repair job, and if necessary to stand over it and see it done or decide how it should be done. It might be expensive at first, but it would be cheaper in the end.

A Minor Detail.

One small point may be worth touching upon, merely as affecting the question of duty. Certain expensive risks may be incurred through senior officers on manœuvres who dislike or do not understand aeroplanes ordering a pilot to fly in hopelessly unsuitable weather. It is always possible that such an officer may tell the officer commanding aeroplanes to send an air-scout to such and such a place at such and such a time, without adding the harmless, necessary words "if possible," which are at any rate admissible on manœuvres, if not on active service, though even then they might be permitted if the general officer merely thought he would like to know what was going on at a certain point or wanted to send a message to a portion of his command, it would be purely a question of the comparative values

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July 14	Brooklands Aero Club Speed Handicap,	1st Heat	A.B.C. FIRST
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of the aeroplane, its crew, and the information it was desirable to acquire.

Even on manœuvres an order is an order. It must be obeyed implicitly and without argument—this for the benefit of officers of the Reserve (on probation)—and the least the pilot can do is to make a sporting effort to get there. But, if the worst comes to the worst, and flying is absolutely impossibly dangerous, a pilot is generally able to demonstrate the fact by piling the machine up before he leaves the ground, in such a way that he and his observer escape without serious injury. The greatest martinet among general officers of to-day is scarcely like the Great Great One, King Tchaka, who every now and then marched a regiment of his Zulus over a cliff to demonstrate to the rest of his army the high state of discipline existing among them.

On the whole, flying on duty need not be any more dangerous or expensive than flying for sport, and when a few improvements have been made in machines, engines, and mechanics it is likely to be very much less so.

The Last Honours.

On Wednesday of last week the bodies of Captain Hamilton and Lieutenant Wyness-Stuart, who were killed at Hitchin on the previous Friday, were taken to the railway station after a funeral service in St. Saviour's Church, Hitchin. Representatives of the War Office and Admiralty and of the Naval and Military Wings of the Royal Flying Corps attended, as well as representatives of the Worcestershire Regiment and Royal Field Artillery, the two corps to which the officers belonged. Captain Hamilton was buried at Hythe, Kent, and Mr. Wyness-Stuart near Mells, Somerset.

On Friday the bodies of Lieuts. Hotchkiss and Bettington were transported with military honours to Oxford Station. Officers of the Royal Flying Corps were present, and detachments of the Oxford and Bucks Hussars and the Oxford and Bucks Light Infantry (Territorial) supplied the escort. Mr. Hotchkiss was buried at Craven Arms, Shropshire, and Mr. Bettington at Scarborough.

Monoplanes and Diving.

In the course of an article on the Military Competition machines recently the writer mentioned that there seemed to be an impression among Army aviators that the Hanriot machine owing to its outward similarity to the Nieuport might be liable to the same defect which is supposed to be the cause of the Nieuport's unpopularity both in the French and British Army.

The alleged defect is that if a machine of the Nieuport type is dived past a certain angle it gets out of control and cannot be brought back again. It is, therefore, interesting to note that when the latest type Hanriot was first produced, André Frey, who was the first pilot of the machine, deliberately took it out over the Seine near Paris and dived the machine vertically to see whether there was any difficulty in getting it up again. He found that the machine answered its elevator quite correctly, and came up without difficulty.

It is also worth pointing out that, although the Nieuport machine is supposed to have the defect mentioned above, there is no actual proof that it exists, beyond the fact that undoubtedly if a very fast machine is allowed to dive so that its weight causes it to reach considerably more than its normal flying speed it will undoubtedly take longer to flatten out, simply owing to that increased speed, just in the same way that a very fast car cannot possibly be turned in the same radius as a slow one.

Aeroplanes at the Manœuvres.

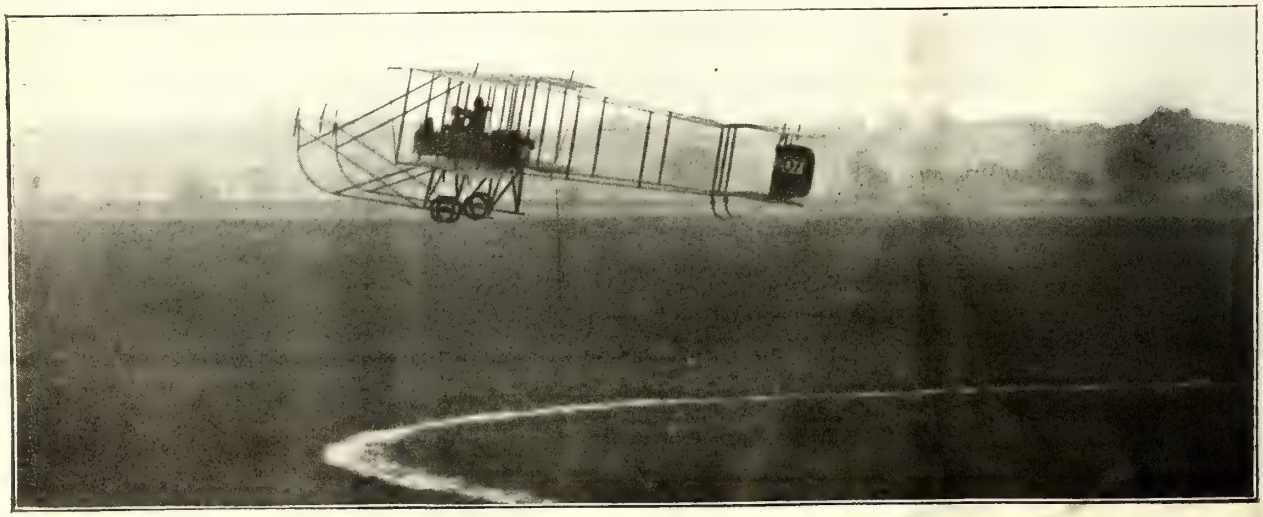
Some excellent flying has been done in the course of the Divisional Manœuvres during the past week, but most of it has taken the form of a concentration of machines at the camps at Hardwick and Thetford. As was noted last week, the first machine to arrive at Hardwick was the triple tractor Short, piloted by Lieut. L'Estrange-Malone, R.N. Commander Samson, R.N., and Lieut. Spencer Grey, R.N., left Eastchurch about the same time, but unfortunately came to grief on the way. Capt. Reynolds, with Major Moss as passenger, flying a Maurice Farman, reached Hendon, and remained there over the week-end, awaiting orders to proceed.

On Thursday an excellent flight was made over the Manœuvres area by Lieut. Longcroft on one of the 100-h.p. Bréguets, in the course of which he remained in the air for three hours, his observer continually dropping messages into a field indicated beforehand, where they were picked up by the staff. These flights, it is said, had considerable effect on the movements of the opposing division.

On Friday of last week Lieut. Longmore, R.N., arrived at Hardwick from Salisbury Plain with Major Trenchard as passenger, and the same afternoon Lieut. Fox, who had already arrived at Hardwick, transported Major Sykes to Thetford. Capt. Raleigh on another Bréguet also arrived at Thetford, and left later for Royston.

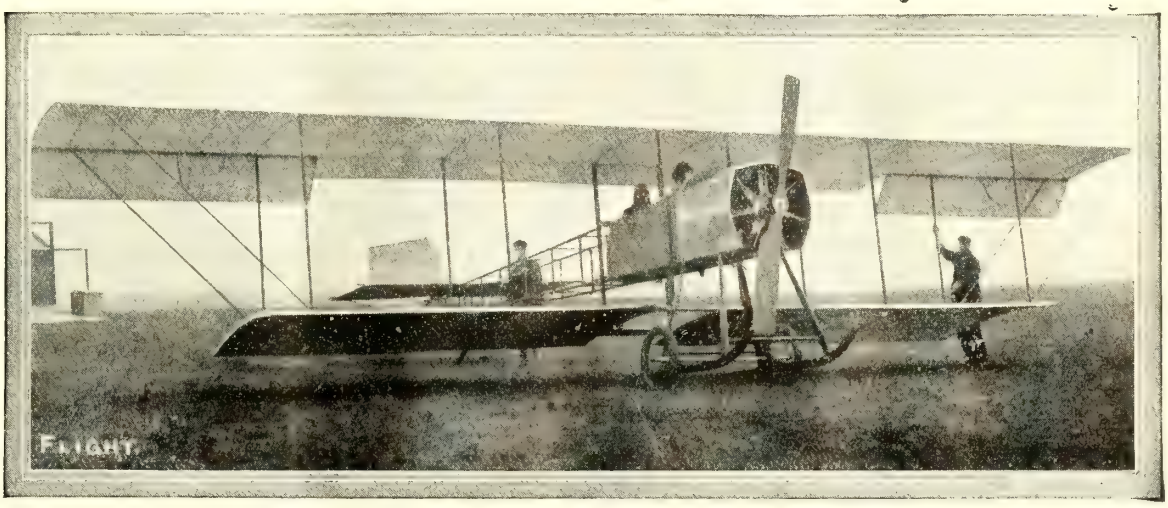
Mr. Cody started on Saturday to fly to Hardwick, but lost his way in the fog, and came down at High Wycombe. Capt. Gordon, R.M.L.I., on a Short biplane arrived after some delay on the way. Lieut. Barrington-Kennett, adjutant, Royal Flying Corps, with Sergt. Hunter as passenger, started from Farnborough, but came down at Letchworth owing to the mist.

Mr. Cody completed his journey on Monday, and has since done a considerable amount of good work. Captain Reynolds and Major Moss on the Maurice Farman started on Sunday to join the rest of their command.



Captain Reynolds and his passenger starting for the Manœuvres on the Military Maurice Farman No. 207.

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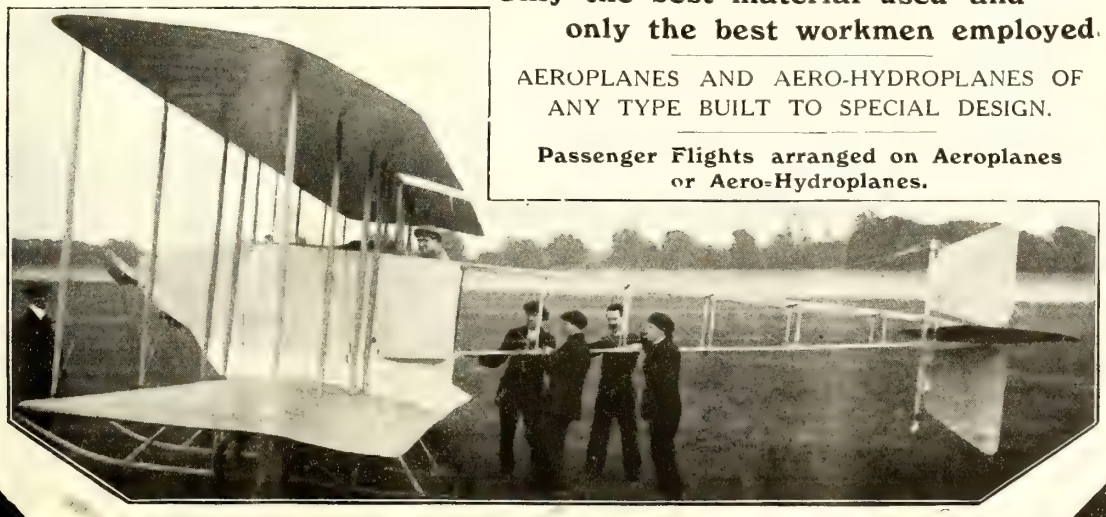
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BY W. E. de B. WHITTAKER.

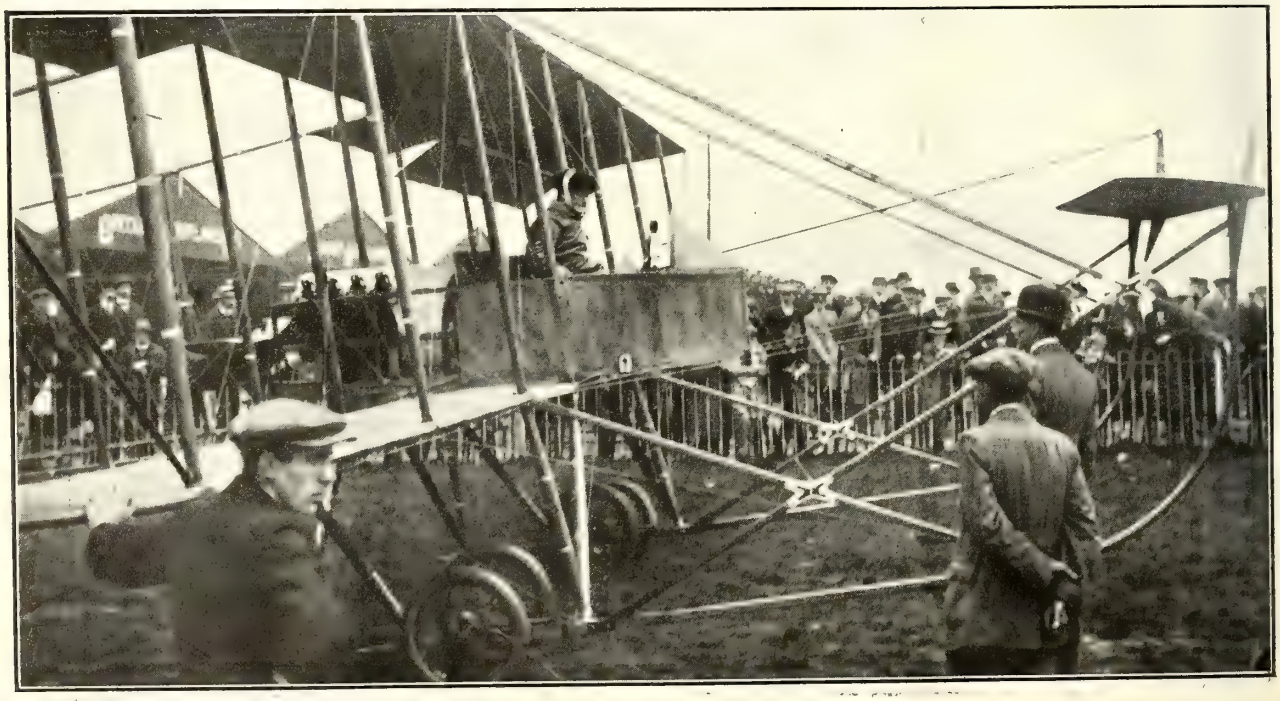
Misunderstanding supplies the greater portion of the unpleasant in life. Few of the undesirable things that happen are the product of deliberate intention. And the younger generation beginning a new phase of their careers are peculiarly liable to do things at which they would shudder in maturer days. But, luckily, the most frequent form of their departing from the accepted canons of correct (and dull) life is in the commission of escapades which are harmless in nature. They leave no sting or bitterness behind. If unwritten law breaking stopped at that there would be no more to say.

A certain number of sportsmen took up aviation because it was a sport. Some others flew because they desired to take some part, however small, in the advancement of a new science. But by far the greater number learned to fly that they might acquire with the minimum of effort the large and tempting sums offered by the generosity of sportsmen or the advertising instinct of daily journals for the carrying out of certain feats in the air. The limelight and the chance of being a public idol also supplied a cause. Wild generosity for no material return dies after a space, and those to whom the big prizes did not fall find themselves in rather a worse position than before the advent of aviation. They have acquired a practical knowledge of aerial navigation, expensive tastes, a thirst for adulation, and an empty exchequer. The country then awakes momentarily from its sleep and decides that it is necessary that a military flying corps should be formed. It is also decided that the civilian element must be admitted because there are insufficient aviators in the Army. An Under Secretary of State talks in the heroic strain of the nobility of the life, of its sustained atmosphere of the Victoria Cross, and more soberly, but none the less importantly, of the business aspect. Even Parliament is thrilled by the glowing periods. And the Royal Flying Corps comes into being.

After the formation of the corps two types of men were attracted. The first is that of the men to whom the country's service has a genuine attraction and who have the serious interests of military aviation at heart. He may welcome the opportunity of flying extensively at the nation's expense, but that, after all, does not matter. He is genuinely loyal. The second type is rather different. The settled pay has the greatest attraction, the uniform pleases his adulation-loving heart, and the prospect of a leisurely four years completes the picture. The society novel says that soldiers do not work and that they have an easily gained and assured social success. If such books say so it must be true, because none ever lies in print. He applies for a commission, his physical appearance is investigated in a perfunctory manner, and he becomes a servant of the King. The reverse of the medal surprises him. He finds that there is work to be done and that the life is not a perpetual flower-show. He is not welcomed enthusiastically as a potential hero. His qualifications are rather ordinary really, and that Under Secretary of State has grossly misled him. Courtesy has some part in the life. Swashbuckling is dead, and he does not realise it. He, after a space, condemns the Service, because he does not, in the pettiness of his mind, realise that he is the wrong type. Some are wise and become good men; others are not, and supply in bitterness what they lack in intelligence.

If a community consists of fifty men, forty-five of whom are good sportsmen and five not, the minority have it in their power to make life very unpleasant to the majority. In a thousand little ways they can make their presence felt. They cannot be ignored and they cannot be suppressed just at present, because behind them stand the political powers that be. There must be no hint of failure of any part of the original scheme because those troublesome talkers in Parliament might be disturbed.

Discipline is maintained in an armed force by other things than the display of power. The finest regiments in the Service hold their position through the consummate tact of the men's leaders. Soldiers are human beings quite as pronouncedly as are civilians, and they are swayed by the same primal impulses.



Captain Reynolds, of the Royal Flying Corps, at Hendon, getting ready to start for the Manœuvres Area, on the Military Maurice Farman, which he and Major Moss were flying.

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While even in the least efficient regiments there are few flagrant breaches of orderliness, there is in such corps a constant and wearing undercurrent of disaffection which sometimes leads to serious results. Some of those who served in South Africa in regiments commanded by unpopular colonels realise the form taken by such disaffection. The example set by those whose duty it is to lead is of primary importance. Disrespect shown by officers to their superiors works down to the ranks and ends in trouble. The instinct of imitation is a lasting survival of our distant origin and is practised by all.

It is customary in the King's armed Services for officers to report directly to their O.C. and not to officers of higher rank who may be in supreme command. Such a custom is the basis of all discipline, as it makes each officer responsible for those immediately below him. But there are rumours, probably true, that certain of those whose positions in the Service have been acquired by direct entry have seen fit on several occasions to correspond directly with general officers commanding. The results may not have been satisfactory to them personally, but that they should have so far transgressed the customs of the Service is deplorable.

Present circumstances possibly dictate certain courses to the supreme authorities which in better times would not be countenanced. The number of officers available for the flying Service may be limited, but one cannot believe that the best possible use has been made of the material at hand. It is to be hoped that as soon as may be the new system will disappear in favour of the old and well-tried method of entry.

The Royal Flying Corps.

From the "London Gazette." War Office, September 10th.

Royal Flying Corps, Military Wing. M. R. N. Jennings to be second lieutenant (on probation), September 11th.

The Dirigibles and the Manœuvres.

The three dirigibles that started from Farnborough on Thursday of last week for the manœuvres area did not meet with much fortune. The new "Beta" got some twenty miles on her road, but the elevator wires went wrong, so she had to descend for adjustments, and then went back to Farnborough. The "Delta" got as far as Finchley, when her engine went wrong, and she turned and came back, covering the return journey with one engine apparently rather faster than she went out with two. The "Gamma" got as far as Hardwick, but only after a struggle, and with a broken crankshaft.

It is interesting to note that the new "Beta" is a small dirigible with a 42,000 cubic-ft. envelope, built of gold-beaters' skin, a boat-shaped body, and a 60-h.p. engine with fixed propellers. She is an exceedingly well-built job, and though her small size keeps her purely in the experimental class she should prove very useful for training purposes. It should be noted that the new "Beta" is quite a different machine from the old experimental dirigible, which still exists more or less.

The "Gamma," which has now been fitted with a 100,000 cubic-ft. envelope built of Continental fabric by E. T. Willows, Ltd., still retains her old Iris—de Havilland engines. This machine actually lifted twelve people at once recently.

The "Delta"—otherwise "Lord Haldane's Hope"—hardly seems to have finished with her troubles yet, for one gathers that the two 6-cylinder Coventry built engines with which she is fitted have shed quite a number of cylinders in the course of her experiments; the number is alleged to be something over a dozen.

The latest arrival at Farnborough is a tiny little Willows dirigible of 20,000 cubic ft. fitted with a 35-h.p. Y type Anzani engine, and a streamline body, similar to that illustrated in The Aeroplane some little time ago, and it is interesting to see that Mr. Willows is at last receiving some recognition in the right quarters.

Though The Aeroplane correspondent at Farnborough is not very definite on the subject, it also appears from photographs to hand that the "Delta" was fitted with the swivelling propellers on the Willows patent system, which has long been advocated in The Aeroplane as the best in existence for this particular work.

French Military Aviation.

The appointments of officers under the flying corps reorganisation are as follows and are to date from October 1st, 1912:—

Staff.—Lieutenant-Colonel Bouttieaux, Engineers, commandant aeronautic troops at Versailles, to be commandant Group 1. Lieutenant-Colonel Breton, Infantry, Professor of Geology and Geography at Ecole Supérieure de Guerre, to be commandant Group 2. Lieutenant-Colonel Estienne, Artillery, Director of Military Aviation at Vincennes, to be commandant Group 3. Commandant Richard, Engineers, commanding [illegible]th Batt. Sapeurs-aerostiers at Reims, to be second in com-

[illegible] Group 2. Commandant Brunaire, Infantry, to be [illegible]oup 1. Capt. Dumontet, 121st Infantry, to be [illegible] Captain Jousselin, Infantry, and Captain [illegible], to be attached Group 1. Captain Estirac, [illegible]e attached Group 2. Captains Chazet, [illegible]laize, 12th Infantry, to be attached to Group 3. [illegible]luod, 1st Engineers, to be attached Group 1. Lieutenant Junca, Infantry, to be attached Group 2. Lieutenant Robert, 29th Infantry, to be attached Group 3.

Aeronautical Companies.

Group 1. Aerostation Company.—Captains Izard and Dumontet, Lieutenants de Vigouroux, d'Arvieu, etc.

Aviation Company.—Captain Jacquin, Infantry, Lieutenants Cesari and Drot, Infantry.

Group 2. Aerostation Company.—Captains Balensi, Bienvenu, Devaulx, Prugier, and Pasquignon, Lieutenant Reure.

Aviation Company.—Captain Aubry, Infantry, Lieutenant Vigue, Infantry, and Sous-Lieut. Menard, Engineers.

Group 3. Aviation Company.—Captain Lagardeur, Infantry, Lieutenants Chabert, Artillery, and Mouchard, Infantry.

Compagnie de conducteurs. 1st Group Detachment.—Captain Chollet and Lieutenant Adam-Givonne. 2nd Group Detachment.—Lieutenant de Chabot.

Aeronautical Sections.

Group 1. Section 11, Chalais Meudon.—Captain Sazerac des Forges, Infantry. Section 12, Douai.—Lieutenant Vaudin, Infantry. Section 13, Etampes.—Lieut. Dupin, Infantry.

Group 2. Section 21, Chalais.—Lieutenant Roussel. Section 22, Verdun.—Lieutenant Mauger-Devarennes. Section 23, Toul.—Lieutenant Joux. Section 24, Epinal.—Lieutenant Grézeaud. Section 25, Belfort.—Lieutenant de Silvestre, Cavalry.

Group 3. Section 31, Camp d'Avours.—Lieutenant Le Bleu, Cavalry. Section 32, Pau.—Sous-Lieutenant Bruda, Infantry.

The following are chiefs of centres:—

Group 1.—Saint-Cyr, Captain Etévé, Engineers. Buc (provisional), Captain Barès, Infantry. Chateaufort (provisional), Lieutenant de Vergnette, Cavalry. Villacoublay (provisional), Lieutenant-de-vaisseau de L'Escaille. Etampes, Lieutenant Massol, Cavalry. Douai, Captain Francezon, Artillery. Casablanca-Fez, Lieutenant Van den Vaero, Infantry.

Group 2.—Reims, Captain de Chaunac-Lanzac, Colonial Artillery. Camp de Chalons, Captain Badet, Artillery. Verdun, Captain Delassus, Engineers. Toul, Captain Schneegans, Infantry. Epinal, Lieutenant Loubignac, Cavalry. Belfort, Captain Renaux.

Group 3.—Lyon, Captain Carlin, Artillery Camp d'Avours, Captain Bellenger, Artillery. Pau, Captain Casse. Biskra, Lieutenant de Lafargue, Cavalry.

Uniforms.

The Ministry of War have issued regulations as to a special uniform for the flying corps. The tunic is of a special type and is called "Alpine." Breeches and putties will be worn. The following are the distinctions between this uniform and that of the Engineers:—

Velvet facings are replaced by cloth facings. The number of the group (aerostation) will be born in red on a black collar patch. That of the aviation section of the group will be born in black on a red collar patch. The buttons (Engineer type) will be replaced by those of Infantry type.

Similar alterations are made in officers' uniforms.

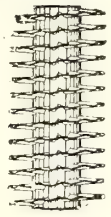
The review-order head-dress has a plume of cock's feathers similar to the chasseurs à pied.

New badges have been issued at the same time as follows:—Aerostation troops—on the right arm, a winged anchor. Aviation troops—on the right arm, a winged propeller. Special mechanics bear on the left arm a toothed wheel (with the addition if breveted of a chevron reversed in gold). Other specialists on the left arm a Hungarian knot.

The flying personnel bear the following collar badges:—Military aviators, a winged star. Dirigible pilots, a winged control wheel. Dirigible mechanics, a winged grenade.—W. E. de B. W.

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German Military Aviation.

The Military Flying Corps has not performed with great distinction during the manœuvres. On September 11th, Lieutenant Siebert, with Lieutenant Zimmermann as passenger, wrecked his machine and was mortally injured. Out of six aeroplanes stationed at Sonewalde, five were destroyed in one day. Two officers of the Red Army, who did succeed in flying, landed in the enemy's country and were captured.—W. E. DE B. W.

Norwegian Military Aviation.

Following the successful flying training of several Norwegian officers at Buc, the Ministry of War has purchased two Maurice Farman biplanes. These two machines have arrived in Norway and are being flown by Captains Jacobsen and Taulow.—W. E. DE B. W.

Russian Military Aviation.

The military aeroplane competition began at St. Petersburg on September 4th. Eleven aeroplanes are taking part. The names are as follows, with the pilot's name in brackets :—1, Sikorsky biplane (Sikorsky); 2, Sikorsky (Yankovsky); 3, Dux (Volinsky); 4, Dux (Boutmi); 5 and 6, Haekel, of Gatchina, fitted with Kotelinkov parachute (Aleknovitch); 7, Khioni monoplane, 100-h.p. Gnome, of Odessa; 8, Steglau (Steglau); 9, Kounedi (Yatsouk); 10, German Wright biplane (Abramovitch); 11, Fokker monoplane (Grinberg and Fokker). The regulations of the competition were printed in these pages some weeks ago. The Fokker monoplane, the Wright biplane, the Sikorsky biplane, and the Khioni monoplane all passed the preliminary tests on the first day. The Steglau aeroplane, which is entirely constructed of wood even to the plane surfaces, was smashed during its first flight.—W. E. DE B. W.

Italian Military Aviation.

Aeroplanes are still used frequently for reconnaissance purposes in Tripoli. Captain Marenco, who has now returned to Italy, is said to have been over fifty hours in the air during his period of service. He left behind his Blériot monoplane, which is still being flown at the seat of war. He made several successful bomb dropping excursions.—W. E. DE B. W.

The Tamise Hydro-aeroplane Meeting.

The results of the flying during the hydro-aeroplane meeting at Tamise place the competitors in the following order :—Renaux (Maurice Farman), 1; Chamet (Borel), 2; Benoist (Sanchez Besa), 3; Beaumont (Donnet-Leveque), 4; Molla (R.E.P.), 5; Weymann (Nieuport), 6; Barra (Triad, Paulhan-Curtiss), 7; Busson (Deperdussin), 8; Gobé (Nieuport), 9.

One of the leading British constructors who was at the Meeting gives the following report of the various machines which were flying there :—

The 80-h.p. Borel monoplane when in the air seemed to fly better than any of the others, but on the water it handled somewhat clumsily, and was sluggish getting off.

The 80-h.p. R.E.P. had an exceedingly efficient float, which got it off the water easily, but when in the air it seemed to be overweighted, and did not lift well.

The 80-h.p. Donnet-Lévêque also got off the water well, but owing to the low centre of gravity it seemed to set up a heavy pendulum action when flying, and with a less skilful pilot than Lieut. de Conneau would probably have come to grief. As it was, the engine suffered from valve trouble, and the machine flew very little.

The 100-h.p. Sanchez Besa, which is a huge biplane built entirely of steel, with the planes very close together, flew fairly well, but did not seem to lift as well as its enormous surface would lead one to expect.

The 140-h.p. Nieuport never managed to fly at all, but the 100 h.p. of the same make flew quite well, though when on the water the floats set up a very bad wash.

The 100-h.p. Deperdussin was broken up in an accident early in the proceedings, so one could not judge its actual capabilities.

The French-built Paulhan-Curtiss biplane never got off the water properly. It was about 150 lbs. heavier than the American machine, and the float is considerably longer, which may account for its not flying.

Renaux's Maurice Farman, as usual, flew excellently, and lifted out of the water easily, apparently scoring its win on the strength of the efficiency of its planes and its excellent power plant.

Continental Notes.

Madame Pallier, who startled the Parisian aviation world by her eccentric brevet flights of a few weeks ago, flew on September 10th from Villacoublay to Etampes and on to Chartres on a 50-h.p. Astra biplane. She started at 7 a.m., reached Etampes at 7.50 a.m., and finally landed at Chartres just after 10 a.m.

The flight duration record again falls to M. Fourny, who, on September 1st last year, flew 720 kilometres on a Maurice Farman biplane, only to be beaten on December 24th by Gobé in a Nieuport monoplane. On September 11th, M. Fourny, on a standard type Maurice Farman biplane, 70-h.p. Renault engine, covered at Etampes, in a closed circuit, a distance of 1,010 kilometres in 13 hours 17 mins. He started his flight at 5.53 a.m., in an unpleasant wind. Several times during the day rain fell and made his task doubly difficult. As an effort of endurance this record is extraordinary.

Bobba made last week a fine flight at Juvisy on the "Colombe" monoplane, designed by M. Ladougne. He was impressed by its controlability and speed.

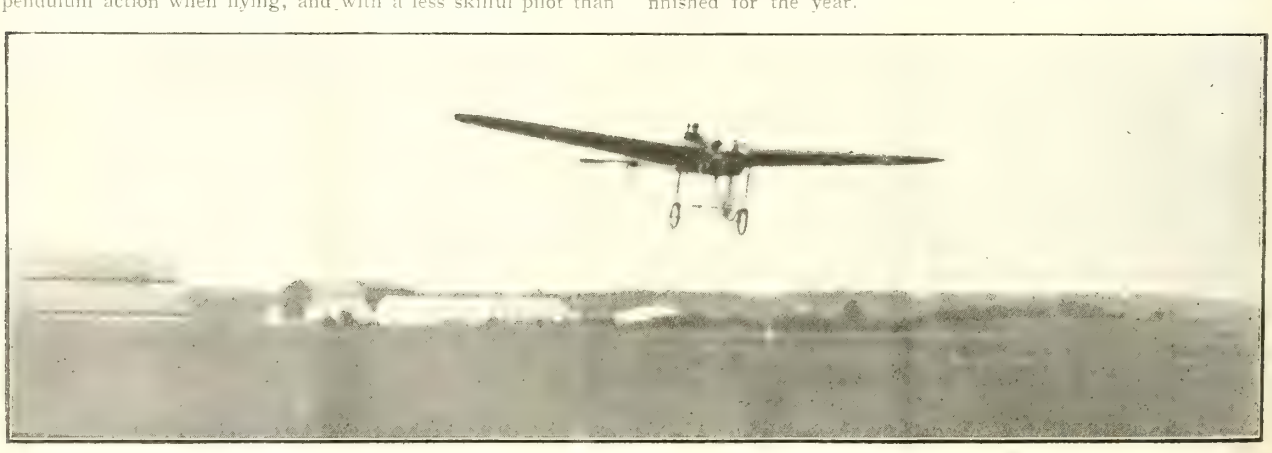
Flying at Bath.

A meeting was held on September 12th to consider the question of an aeronautical exhibition and flying meeting for Bath. It was decided, subject to sufficient support being offered, to hold a meeting in October, the principal features of which would be an exhibition of machines and accessories, competitions for power machines (to include a big cross-country race with suitable prizes, and illuminated night flights), and competitions for models and kites.

To make the venture a success it was decided that a fund of at least £400 for prizes must be raised and £300 guaranteed towards working expenses.

The Reason Why.

The "Daily Mail" for September 14th heads a paragraph "Why the Birds are Leaving"—Presumably because that enterprising paper's aviation advertising scheme seems to have finished for the year.



Mr. Raynham on a Flanders monoplane doing a military test over Laffan's Plain. In the background may be seen the Royal Aircraft Factory and Dirigible sheds.

The Aeronautical Society.

The following have been elected to serve on the Finance Committee :—Major-General R. M. Ruck (chairman), Mr. A. E. Berriman, Mr. Griffith Brewer, Mr. F. Handley Page.

Hubbard Testimonial Fund.—This fund has now been closed, and a sword and cheque presented to Mr. Hubbard.

Wilbur Wright Memorial Fund.—The following subscriptions have been received: Amount previously acknowledged, £520 1s.; Mrs. D. B. Warner, 10s. 6d.; J. Barclay, Esq., 5s. Total, £520 16s. 6d.

School Activity.

Now that the Military Competition is over school work is settling down in earnest, and the various schools are showing great activity. One of the most promising is the Vickers School at Brooklands, where a Farman is kept for early efforts, a comparatively slow monoplane for the next stage, and the fast "number 6" Vickers for more advanced pupils. One learns that a Vickers tractor biplane is to arrive ere long and sundry other monoplanes also.

The Sopwith School is also doing good work, but it is rumoured that it may be moved from Brooklands to a place where more attention can be given to waterplanes and batboats. The successful Sopwith biplane has been rebuilt and looks very handsome.

Mr. Herbert Spencer is working away steadily with his biplane and does a large amount of passenger carrying.

The portion of the Bristol School which came from Salisbury Plain during the Military Competition has returned there, and Mr. Merriam, with Mr. Bendall and Mr England the younger, are now able to give more attention to the Brooklands pupils proper.

The Avro School is moving to the Shoreham Aerodrome with a special view to hydro-aeroplane work.

At Hendon, the Grahame-White School is going strong, the biplanes and monoplanes being hard at work whenever weather permits, so that with school work, passenger-carrying, and week-end exhibitions these machines and their engines are about the hardest worked in the country.

The W. H. Ewen School has become extremely active since Mr. Ewen returned to take charge personally, and a whole crop of certificates on the Caudron may be expected in the near future.

The Deperdussin School, under the personal direction of Mr. Santoni, with Mr. Gill as chief pilot and instructor, is becoming busier and busier, the taxis, the brevet machine, the racer, and the two-seater all being requisitioned for the instruction of pupils.

At Eastbourne, Mr. Fowler has lately acquired three biplanes, two as taxis and one for brevet work, besides his Blériots. Mr. J. J. Hammond, the first Australian pilot, has joined him and has already done some fine flights.

At Waterloo, Mr. Melly is working steadily, and has lately produced a 35-h.p. monoplane for the use of pupils, the old Blériot two-seater being used for tuition as well.

Mr. Blackburn has forsaken Filey, and is shortly starting up a school at Hendon, where the handsome Blackburn monoplanes should be welcome additions to the week-end meetings.

Two American Fatalities.

Two more American aviators have been killed during the past week. Paul Peck, who held the American duration record, was killed during an exhibition flight at the Chicago Meeting, and on Saturday Howard Gill was also killed at Chicago through a collision in the air at a height of about 75 ft. with the machine of a French aviator named Mestache, who has been flying in America for some time.

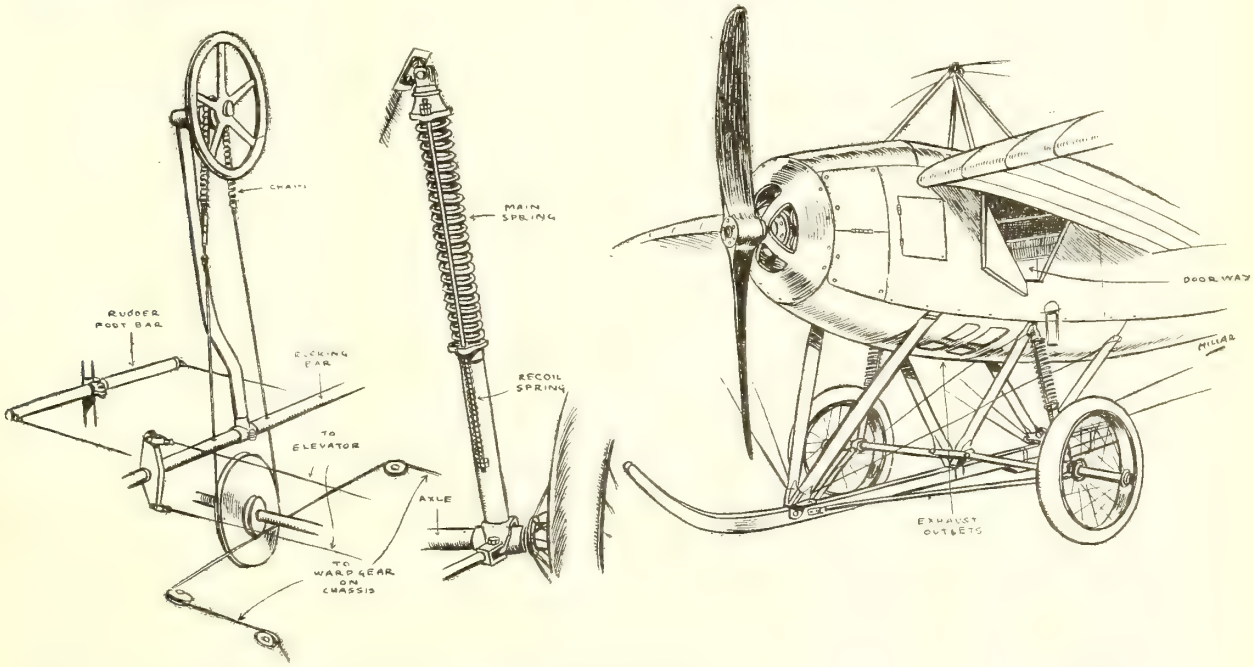
The Naval and Military Meeting at Hendon.

The Naval and Military Meeting at Hendon on Saturday, 28th, ought to be highly successful, if the interest taken in the event by prospective entrants is any criterion. Flying officers on the active list of either Service will be interested to know that if they do not own machines and are desirous of competing, certain manufacturers have signified their willingness to lend machines for them to fly. Particulars of these machines may be obtained from the Grahame-White Aviation Company, Ltd., 166, Piccadilly, W.

A feature of the meeting will be a review of all the aeroplanes which may be at Hendon on that day, and as there are already some thirty machines permanently at the Aerodrome, and as a number of others should arrive during the next week, there will be about forty machines paraded. The Secretary of State for War has signified his intention of being officially represented on this occasion.

A Competition at Brooklands.

The fifth aeroplane handicap will be flown on Saturday, September 28th, at Brooklands, an out and home cross-country, the race being for all classes of aeroplanes. Distance to be covered, about ten miles. Entrance fee, £1. Winner to receive £50 or cup; second to receive £25 or cup; third, £10 or cup. Entries must be sent in before September 21st by 12 o'clock noon. Entry forms can be obtained upon application to the Brooklands Automobile Racing Club, Carlton House, Regent Street, W.



Details of the Handley Page monoplane. The control arrangement, the axle spring, and the general arrangement of the chassis.

Monoplane or Biplane.

A statement has been widely circulated by the outside Press to the effect that the authorities controlling the Royal Flying Corps have decided to forbid the use of monoplanes until such time as it has been proved that a monoplane can be made as safe as a biplane, or words to that effect. The impression certainly remains that the monoplane is held in disfavour, and recent purchases of machines by the Flying Corps lends colour to the assumption.

Recent Purchases.

Within the past six or eight months a number of machines have been bought or ordered, and the following list, which includes old as well as new, is fairly accurate. The monoplanes which are or have been in possession of the Flying Corps are :—

One Nieuport 100 h.p., one Nieuport 70 h.p., three Nieuports 50 h.p. (one wrecked, and one at the Central Flying School).

Two Bristols 80 h.p. (Military Competition machines, both since wrecked), one Bristol 50 h.p. (fixed tail type), one Bristol 50 h.p. (balanced elevator type).

One French Deperdussin 100 h.p. (since wrecked), one British Deperdussin 100 h.p., one British Deperdussin 70 h.p., two French Deperdussins 60 h.p. (one very old, fit for School use only), one French Deperdussin 70 h.p. (Naval Wing, formerly with floats)

One Short 50 h.p. (Naval Wing, experimental)

One Birdling (Blériot type) 50 h.p. (Naval Wing, School use).

One Etrich 70 h.p. (Naval Wing).

One Blériot 70 h.p. tandem (Military Competition machine), one Blériot 70 h.p. (side by side, very old and dangerously decrepit).

One Blériot 25 h.p. (very old, only fit for rolling).

In all twenty-one monoplanes.

The biplanes which have actually been in the hands of the Flying Corps are :—

Three Henry Farmans 80 h.p. (latest type, one for Naval Wing), one Henry Farman 50 h.p. (old box-kite type, probably in pieces).

Three Maurice Farmans 70 h.p. (one from Military Competition, all latest type).

Six Bristols 50 h.p. (all box-kite type, old, and fit for School use only).

One Cody 120 h.p. (Military Competition winner).

Three Avros 50 h.p. (all at Central School, but quite new, and fit for active service).

One Short 100-h.p. newest triple tractor (Naval Wing), one Short 70-h.p. tractor (Naval Wing), one Short 70 h.p. (box-kite re-built on lines of modern Henry Farman, with bigger engine, a very good flier), one Short 100-h.p. tractor hydroaeroplane (Naval Wing), two Shorts 70 h.p. (new dual control box-kite type, Central School), two Shorts 50 h.p. (very old box-kite type, School use, Naval Wing).

Two Bréguets 100 h.p. (very latest type), one Bréguet 70 h.p. (ancient but serviceable).

Seven biplanes built in the Royal Aircraft Factory, namely six of the B.E. type and one of the Henry Farman type, two of these being old but fairly serviceable.

Or thirty-five biplanes in all.

Of these, three monoplanes are hopelessly wrecked and one less so, five would be dangerous to fly on active service, or in anything like a wind, and one is not really able to fly at all, leaving eleven or twelve fit for use. Of the biplanes all still exist, more or less, but eleven of them would be quite useless on active service, and four or five more would be of little practical use. So that one may reckon on about twenty biplanes fit for use in time of war, though very few of them would be fast enough to stand much chance against an army equipped with a fleet of fast, powerful monoplanes, or the speediest possible biplanes.

The monoplanes on order at present are two or three Deperdussins, one at least of them being for the Naval Wing; and four Flanders monoplanes, two of which passed their flying tests, but suffered from chassis troubles and are being altered. The biplanes on order are one Cody of 120 h.p., five of the B.E. type from Vickers, Ltd., five similar machines from Handley Page, Ltd., four of the same from the Bristol Company, these fourteen being with 70-h.p. Renaults; and one 100-h.p. Avro hydroaeroplane for the Naval Wing.

From this it may be seen that in both the machines delivered and machines on order the biplanes are, roughly twice as numerous as the monoplanes. I do not guarantee that the numbers of machines given are absolutely correct, as the figures are not official, but they are so near as to be accurate enough for practical purposes. Also I have not included the late the Hon. Charles Rolls' original type Wright, the Duke of Westminster's old Voisin, nor the three Valkyries, all of which practically do not exist any more.

The Popularity of the Biplane.

One may fairly judge from the comparative numbers of the two types that the biplane finds more favour among the officers who fly than does the monoplane, and it is not hard to see why. On the average the biplane is easier to fly. It gets off at a slower speed, and lands at a slower speed. At the same time there is an opinion, somewhat erroneous, that a biplane is safer than a monoplane. All these arguments are more or less based on fallacies, for the comparative merits of each type depend on circumstances and not on essentials.

If one designed a small surface biplane, carrying as big a load to the square foot as a monoplane, the fabric would burst if once punctured, just as certainly as would that of a monoplane. And a burst wing on a biplane will cause as bad a smash as in a monoplane provided that the machine is as fast and as heavy.

The advantage of the biplane in this respect is that owing to the possibility of having twice the surface in the same span one can build a machine with flat planes which can still carry a big load, so that a large, powerful engine can be used which will force the machine off the ground at an angle at which the planes are really working inefficiently. When the machine is flattened out to the most efficient angle of the plane the big engine will force the machine through the air at a high speed in spite of its head-resistance being greater than that of a monoplane, which would carry the same load at the same speed with less power. It would be quite possible to build a monoplane to do exactly the same thing, but its span would be abnormal, and unhandy for housing.

Mr. C. C. Turner, who usually writes with extreme accuracy, commits himself in "The Observer" to the statement that: "In the opinion of soldiers it is not necessary to possess machines that travel at very high velocities—a good working speed of 60 miles per hour, combined with qualities of reliability, is sufficient." No doubt there are soldiers of this opinion, but there are also soldiers of the opinion that aeroplanes are of no use at all, or at any rate that they are not essential to a modern army; and there were soldiers of the opinion that the big Creusot guns used by the Boers and the Naval 4.7's used by the British forces in South Africa were not of much use.

The 4.7's would not have been much use if the other side had not been inconsiderate enough to use long Creusots, and, similarly, if both sides in the next war would agree to an aeroplane speed limit of 60 m.p.h. all would be well, but the pilot and observer on a 60 m.p.h. machine would be rather unpleasantly situated if they found themselves fifty miles from home on a strategic reconnaissance and harassed by half a dozen 80-mile-an-hour single-seaters.

Speed is just as essential to the air scout as to the sea scout. The 40-knot destroyer is neither so safe nor so pleasant as the 23-knot battle-cruiser, but we need both, and we find crews to man them. Admitting, then, the necessity for speed, we can achieve it in two ways, either by efficiency or by sheer brute force. The monoplane is evidently indicated as the correct type for efficiency, and if attempts are made to reach similar speeds with biplanes of enormous size and power we shall simply have a fresh crop of accidents on the big biplanes till we have discovered the particular defects which cause them. Possibly designers will find that wood is impossible in machines beyond a certain size, and will use metal throughout. After which they will find themselves up against all the problems of crystallisation of metals and syntonic vibration.

The Two Recent Accidents.

The fact that the two recent fatal accidents have occurred on monoplanes has apparently caused the panic which seems to exist in certain quarters, but a proper understanding of those accidents shows that under similar circumstances either of them might have happened to a biplane, and that with a little luck neither might have occurred at all.

In Captain Hamilton's case it has been established fairly clearly that a valve-rod broke in the engine some distance away from the scene of the accident. The engine stopped at a considerable height and then started again a moment before the machine actually broke. This would appear to prove that the pilot switched off, glided down some way, knowing some-

thing was wrong, and then switched on again in the hopes of making a better landing-place. Or the switch may have gone on by accident. In any case, the loose pieces of the engine tore everything round them, cut away the fastening of the long cowl, which blew back, carried away the upper masts and their wires, and with them tore off the fastenings of the main spar cables, so that the wing system collapsed.

Now if the engine had not been a rotary, the breaking of a valve rod could not have caused such havoc. Further, if the switching on was intentional, it was contrary to a rigid rule which teaches that a rotary engine must be stopped immediately it gives a single sign of having anything wrong with it—a rule which should really apply to every type of engine, but is less essential when the cylinders are stationary, and may be broken if a little extra help from the engine may save a bad landing and a wrecked machine at the expense of the engine. However, in any case, the rotary engine was practically the sole cause of the accident.

This being clearly seen, it is necessary to point out that if the same thing occurred in a tractor biplane with a similar engine of great power the engine covering might do any of several things. It might break the central struts and stay wires, so that the whole machine would collapse. It might injure both pilot and passenger as it swept back, so that the machine would come down out of control. It might break the control wheel or lever. It might jamb into the engine, in which case the enormous revolving mass might tear the front out of the fuselage. It might swing sideways and cut a wing to pieces or break the warp or stay wires. It might travel straight aft and cut up the rudder and elevator. About the one thing it has the least chance of doing is getting clear of the network of struts and wires without damaging some vital part. So the tractor biplane does not score heavily in such cases.

In an engine-behind biplane a broken rod will probably end in a broken propeller, which may either break a tail-boom, cut the control wires, tear the planes, or shake the engine out of the machine. So there is little comfort in this direction either.

The remedy, which is utterly simple, is not to use high-powered high-speed rotary engines, especially in these days when so many excellent fixd cylinder engines exist which have actually beaten the rotary in open competition.

Mr. Hotchkiss' accident was of a different nature altogether. From the evidence at the inquest the cause was made as clear as was humanly possible. On this particular machine an auxiliary cable ran from the centre of each front spar to each end of a steel plate which was fixed across the bottom of the fuselage, between it and the streamline sheeting underneath, the plate being screwed to the bottom of the fuselage, and the cables attached to it by quick-release clips, designed to facilitate quick assembling and dissembling. The clip on the left end apparently released itself, and the pull on the right cable drew the plate out from between the fuselage and the streamline sheeting, either owing to the fastening shaking loose or because it was not fixed firmly. This plate, lashing loose at the end of the cable, appears to have cut the fabric of the right wing, which therefore burst, as did the wings on Captain Camine's and Lieut. de Grailly's R.E.P.'s last year, when the fabric parted at the joints. The apparent proof of this is that the plate was picked up at a distance said to be half a mile from the place where the machine struck, and that the spars of the right wing were left practically intact but were stripped to a great extent of their fabric. The left wing was crumpled up under the machine, which struck a pollard willow and rolled off it on to the wing, but so far as could be seen all the material of the wing was there. Also, the engine, which tore out of the machine when it struck the tree was practically uninjured and had nothing to do with the accident.

Now, just such an accident could occur in the same way to a biplane which carried as heavy a load to the square foot, and in which the fabric was under so big a strain that it would burst if punctured. In fact, this accident really resembles the bursting of a balloon more than anything else. The fatal accident to Mr. Gilmour was almost certainly caused in the first instance by a similar bursting of the fabric of his right wing, though the resultant effects were different.

The only possible safeguards against such accidents seem to be either the fixing of a limit to the load per square foot a machine may carry, or the use of a wing covering which will not rip when punctured as ordinary fabric does. For it must be remembered that a fragment of shell or a glancing bullet could rip fabric in the same way, so it is absolutely necessary that wing-covering should not split if a hole is made in it. In this relation also experiments are needed as to the effects of the various liquids used in the treatment of various fabrics after they are fixed on the wings. For instance, certain of these liquids have most deleterious effects on cotton fabrics, whereas if applied to pure unbleached linen they appear rather to strengthen it. If experiments show that no fabric will stand the pressure it may become necessary to use sheet aluminium or one of its alloys, if further experiments show that it will stand a bursting strain better.

However, though it is undoubtedly possible to build very large monoplanes capable of lifting as big a load as any biplane with as light a load per square foot, and to make monoplanes with smaller surfaces heavily loaded carry as big a weight; and though small biplanes can be built to fly as fast as any monoplane, and big biplanes can be forced through the air at enormously high speeds, it seems highly probable that the biplane—or multiplane, for the triplane may yet be revived—will be developed as the weight-carrying fighting machine and observation machine, while the monoplane will exist as the high-speed vehicle for strategic reconnaissance, for rapid despatch-carrying, for artillery range-signalling, and especially for work analogous to that of high-speed destroyers at sea.

The two types are absolutely necessary and complementary to each other, and the present anti-monoplane scare has about as much foundation on fact as had Lord Northcliffe's statement last year that the "Circuit of Britain" in which Lieut. de Conneau and M. Védrines performed so well, sounded the death-knell of the biplane.

C. G. G.

Hydro-aeroplanes in Switzerland.

Mr. L. Howard Flanders, who has been taking a holiday at Montreux-Territet, writes:—"There are about eight hydro-aeroplanes here, mostly rather antiquated box-kites of the home-made description. There is a monoplane of the cross-channel Blériot type with an Œrlicon motor, which seems to run, at any rate, long enough to fly from Geneva here. One would expect that, with the mountains, the wind would be gusty, but such is not the case, or, at any rate, it is much better than at Brooklands. I think that flying here should be fairly profitable, as the towns pay a retaining fee, and there is money to be made in passenger flights."



The W. H. Ewen School at Hendon, showing the Caudron biplane and monoplane, the school Blériot, and the Deperdussin.

Causes of Wing Failure.

There have recently appeared in "L'Aero" some very interesting articles by M. Pierre Rivière on causes of wing fracture, in which the author opens up such a large number of new fields of thought that it would be a great pity for English designers and constructors to miss them. I therefore append a free translation of them, from which is omitted only the introductory passages.

"In examining the conditions which have produced certain recent accidents, there has been rather too great a tendency to blame the front spar of the wing, and its attachment to the fuselage. In fact, it has been said that a breakage at the root of the main spar is practically the only way in which a wing can break, not only because this explanation seems on the face of it to satisfy very easily the conditions under which the accidents have taken place, but also because an examination of the wreckage almost always shows the spar broken in this place.

"As a matter of fact, even when this is so it is no proof that this breakage was the original cause of the wing folding. On the other hand, a careful consideration of the subject shows that, as a rule, it is an effect and not the cause of the breakage of the wing. In an examination of the subject one must first take into careful account the strains which are placed on the spars. These are, firstly, the horizontal component of the pull on the tie wires, which acts in the direction of the spar, and puts on it a great compressive stress, which latter is in turn transmitted to the fuselage, any weakness of which in this spot is almost sure to be fatal; secondly, the bending moment from below, especially that which comes upon the root of the spar where it enters the fuselage. In cases where the main spars are set into boxes in the fuselage this stress may become very dangerous upon the slightest slackening of the tie wires.

"It may be remarked here that, as a matter of fact, wings like those of the R.E.P., in which the main spar is attached on a hinged joint, are really much safer than those where the spar roots are boxed, although when designing them the apparent stresses are greater with the joint attachment.

Broken Cable Dangers.

"One obvious reason for wing failure is the breakage of one or more tie wires, but the chance of this is greatly diminished nowadays when piano-wire is in disfavour and stranded cable in the ascendant, for the latter is not merely so liable to sudden failure as the former; besides which, failure of stranded cable is almost always shown by the preliminary fracture of one or two of the strands, whereas piano wire goes without the slightest warning.

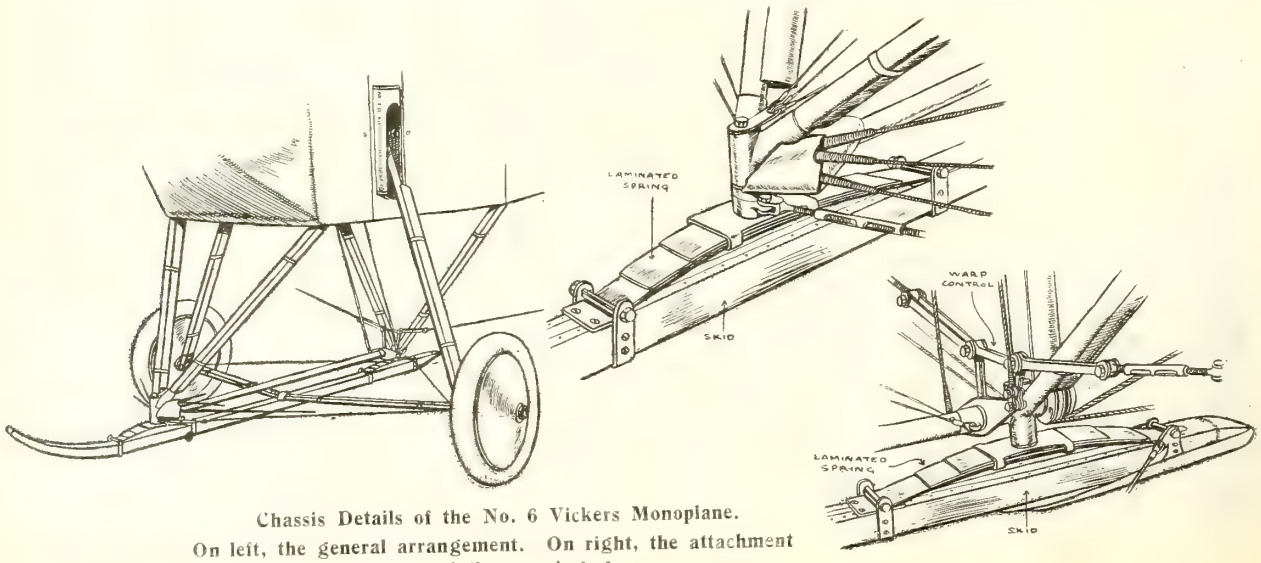
"Another cause on certain machines is undoubtedly the lack of proper strutting of the chassis to take the strain of the wings which are attached to it, as well as the ordinary strains of landing for which it is primarily designed, especially since a rough landing may easily cause a slight weakening of the chassis, which may lead eventually to failure under the stress of the wing stays.

Weak Rear Spars.

"But neither of these causes are those which most frequently lead to accident. Undoubtedly the most frequent form of failure is a breakage of the rear spar, which inevitably entails the total failure of the wing, and which is by no means necessarily caused by faulty material or assembling. As a rule, it is due to the fact that in certain machines the rear spar works under most deplorable conditions. It appears to be the general belief that, because the front spar is nearest to the centre of pressure, the stresses on it are far greater than those on the rear spar, which designers are inclined to consider almost as an auxiliary spar whose strength may be negligible. [This is undoubtedly true with many of our designers. On the other hand, I know from Mr. Flanders' own words that he is in agreement with M. Rivière, and that in all his machines the two spars are equal in strength.—P. K. T.] As a matter of fact, the rear spar has a very heavy load, and is of much greater importance than is usually believed. What makes things worse is that it has thrown upon it the greater part of the stresses caused by warping, very often under conditions so adverse that no amount of strengthening will make it really safe. Sometimes, indeed, the 'strengthening' makes it more liable to fracture, since the additional stiffening militates against flexibility, and renders the spar more likely to get tired when the twisting strain of warping comes upon it.

"Nevertheless, if the warp is properly arranged it may be used constantly without any ill effect. For this purpose it is absolutely necessary that each wire going to the rear spar must be responsible for its proper proportion of load when the warp is used, so that under all circumstances the rear spar will be kept straight. Further, the root of the rear spar *must* be attached to the fuselage by a properly arranged hinge, so that when warping it is perfectly free to rotate. These careful warping arrangements are actually in force on a fair number of monoplanes, none of which have as yet suffered from wing failure. The movement is still not thoroughly mechanical, for since the two spars do not remain in the same plane it is impossible to warp without putting a certain amount of torsional stress upon the ribs; but this is very small in amount.

"But imagine a wing in which the warp is not so well arranged and in which the rear spar is bent when the wing is warped: it is interesting to notice the various stresses produced. In this particular case one may imagine that the wing is being warped by the tip only, the inner wires being merely compensators. The first thing to notice is that under these circumstances the centre of the spar is at liberty to take



Chassis Details of the No. 6 Vickers Monoplane.
On left, the general arrangement. On right, the attachment of the main cables, and of the warping gear.

up any position as far as the staying is concerned, and the natural result of the load on it is that it will bend upwards in the middle. The result is that between the middle and the root there is a bending moment of considerable amount. This moment is greater still on account of the fact that while the conditions have become worse, the load on the wing has actually increased. Further, the compression caused by the pull of the outer stay wire now no longer causes a direct compressive stress on the spar, but is more in the nature of an additional bending moment, so that one sees that the rear spar is subjected to a combined compressing and bending load at the same instant that the actual value of the load has increased, while simultaneously one of its wires is unable to give it support. Further still, the situation is complicated by the fact that at this moment, owing to the increased angle of the wing, the resultant pressure on it is some way behind the vertical, so that there is a large component tending to fold the wing backwards. Also, owing to the peculiar conditions of warping, this force is concentrated at the tip of the wing. The only resistance offered to it is the lateral strength of the rear spar, for while under usual circumstances the drift is taken by the horizontal wires, these no longer assist when the plane is warped, and the drift increases. At the same moment the ribs, which also take up a part of the drift, are slightly weakened by the twist that is put on them, so that the spars have to resist the force without any reinforcement—and it must be remembered that as a rule spars are constructed almost entirely with a view to vertical loads, and do not offer a great resistance to a sideway stress.

"To conclude, one is inclined to ascribe the various wing failures to the following causes:—

"Firstly, a downward air pressure on the wing, produced in any of the ways which have been dealt with elsewhere; a cause which can easily be remedied by thoroughly reinforcing the top wiring.

"Secondly, failure of the cabane or chassis struts (where the latter support the wings); which may be remedied by the substitution of steel tubing for wood in the chassis, or better still, by using a chassis design in which the wires from both wings meet one another at a central skid.

"Thirdly, failure of the wing near the fuselage caused by the bad conditions under which the rear spars work during the warp, wherein are combined bending and compressive stresses which deprive each spar of the support of the other; in which case the only remedy is to make certain that each of the rear spar wires is made to take its appropriate share of the load, to whatever extent the warp is carried."

The above translation appears to treat the subject so admirably that no further remarks are necessary.—P. K. T.

The Brighton-Shoreham Aero Club.

Notice to Members.—There will, weather permitting, be flying at the Shoreham Aerodrome every Saturday afternoon. Members wishing to arrange for passenger flights can do so by communicating with the Manager, Avro Flying School (Brighton), Ltd., at the aerodrome, or with the undersigned, H. Gonne, Secretary, the Brighton-Shoreham Aero Club.

The New 6-cylinder 100-h.p. Green Engine.

There is undoubtedly a demand for engines of a higher power than those hitherto made in this country, and it has been known for some time that the Green Engine Company have produced a new 6-cylinder, 100-h.p. model. This engine, while bearing a close resemblance to the 4-cylinder type, has many refinements which experience has proved desirable, and it is one of the handsomest engines the writer has yet seen.

The crankshaft is of the finest Chrome-Vanadium steel, and being of larger dimensions and comparatively heavy, weighing 70 lb., it is as strong as the engine can possibly need.

The valves are larger than those of the former model. All wires from magneto to plugs are enclosed and out of sight. No rubber piping is used in connection with the water circulation; this is undoubtedly a great convenience, making a much neater job, and absolutely obviating any chance of leakages.

The crank-case has been stiffened by a stout web, running the whole length from bracket to bracket, and strengthening the case enormously.

The camshaft is made of much larger dimensions in order to eliminate any possibility of spring in it, though there is no sign of spring in the 4-cylinder model.

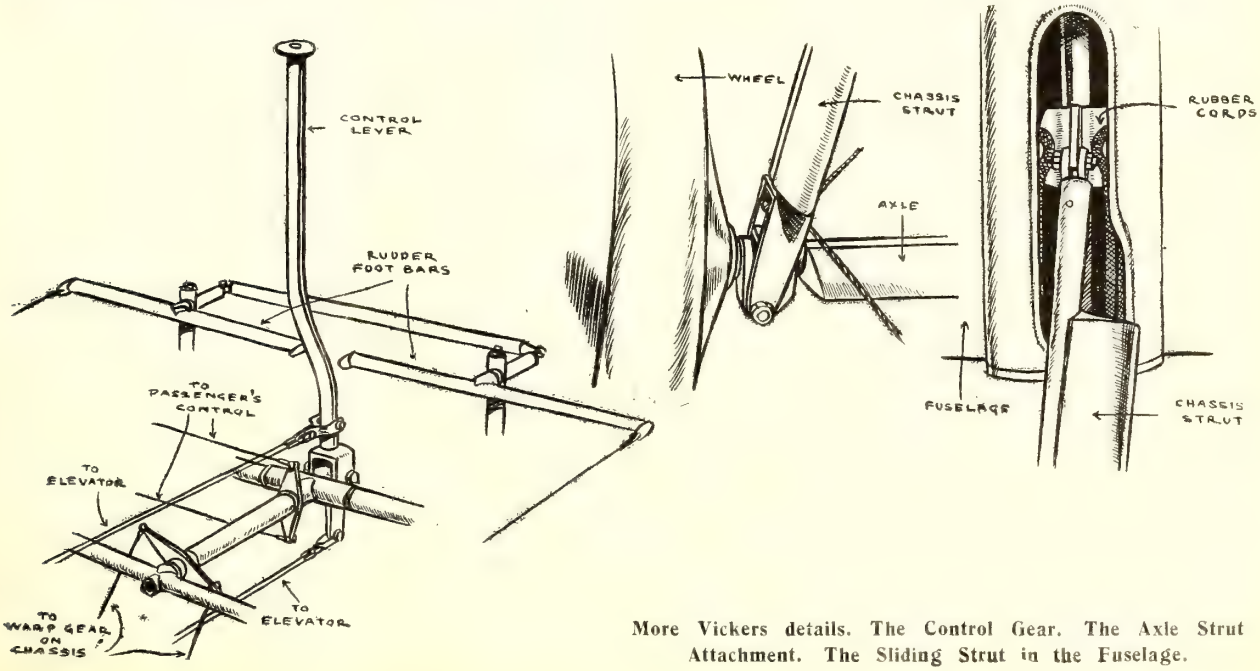
The water-jackets are of two gauges heavier copper, which experience has proved advisable owing to the treatment engines receive, though not necessary if they are properly handled.

All the oil used in the engine is filtered immediately after leaving the oil-pump, as it is essential to prevent any dirt that might pass the pump getting down to the bearings. The oil pressure has also been increased.

The engine has been submitted to a very severe test, having run on the test bench every day, with the exception of Saturdays and Sundays, for four weeks, after which it was opened out for examination, when no mechanical defects whatever were visible.

The engine complete, ready for running, with pipes, magneto, and carburetters, weighs 442 lb., and if equipped for a 4½-hours' flight will weigh less than any other engine of the same power, air cooled or otherwise, after taking radiators and water into consideration. This model is not fitted with auxiliary ports unless specially ordered.

At a very early date the firm will be in a position to give quick delivery of this model, and already several are on order.



More Vickers details. The Control Gear. The Axle Strut Attachment. The Sliding Strut in the Fuselage.

The Week's Work.

MONDAY, September 9th.

R.F.C. Central School.—Capt. Fulton on Avro 405 alone and with Capt. Salmond. Major Higgins and Lieut. Abercromby each alone on Avro 404. Lieut. Longmore, R.N., on Maurice Farman 403 with Air Mechanic Collis and Lieut. Martyn alone on same. Major Trenchard on Short 402. Capt. Broke-Smith on Bristol 408.

Lark Hill.—Bristol School: Mr. Pixton three flights in evening, taking up Lieut. Hall and M. Jullerot.

Hendon.—At Grahame-White School, 6 a.m., under superintendence of Mr. Lewis Turner, Mr. T. P. H. Bayetto (new pupil) receiving instruction on 25-h.p. Blériot. In evening, Mr. E. J. Howard-Wright (new pupil) out with instructor (Mr. Turner) for tuition in rolling and straight flights on Grahame-White biplane. Capt. Kunhardt and Lieut. Allen, Messrs. Holscher and Wilson straights on Grahame-White biplane. Mr. Roupel doing circuits on 35-h.p. Blériot.

At W. H. Ewen School pupils out at 6.15 p.m. Following flight by Mr. Ewen, Mr. Sydney Pickles also went up on 35 Caudron biplane, and for 30 minutes going over 1,000 ft. and carrying out effective banking and glides. Biplane then handed over to Messrs. Edmund and Sutton, who each made confident flights at about 50 ft. M. Baumann out with monoplanes 1 and 2 and got some splendid results from pupils. Messrs. Conran, H. James and Lieuts. Bayly and McMullen good straights on No. 1 monoplane. Mr. Edmund on monoplane No. 2, circuit, and Capt. Chamier and Mr. J. H. James good progress on same monoplane. To finish day's work Mr. Ewen was out again on the 35-h.p. two-seater Caudron, taking with him as passenger Master Lewin ("Winkles").

At Bleriot School.—Messrs. Sacchi, Gandillon, Reilly and Teulade all practising, and put in very good work. Mr. Hall also out flying his 50-h.p. Gnome Blériot in good style.

Brooklands.—At Hanriot's, Mr. Sabelli arrived at 6 a.m. from Hendon after trying journey in a high wind.

At Sopwith School, in evening, Mr. Perry for circuits at about 1,000 ft. on school Farman, then giving instruction to Mr. Lane. Capt. Ellington then flying excellent circuits on same machine for about half hour. Major Cameron good straight flights.

At Vickers School, in evening, Messrs. Barnwell, Geere, and Capt. Stott making straights and curves on No. 3.

At Bristol School, Mr. Bendall alone, and then with Capt. Gibbon. Mr. Merriam with Captain Reid and Lieut. Stopford. Mr. Bendall with Capt. Reid and Mr. Merriam with Mr. Hall and Capt. Gibbon. Capts. MacDonell and Price, Lieuts. Penn-Gaskell, Glanville, MacLean, and Mr. Payze alone. Mr. Merriam finishing work with spiral glide, landing in front of sheds.

Dublin.—Exhibition flights by M. Salmet in Phœnix Park. At 9.15 a.m. M. Salmet started from Leopardstown and flew to Park, crossing over considerable portion of South Dublin in doing so. Directly after lunch M. Salmet started again, and did number of impressive flights over Park. Further flights by Mr. Desmond Arthur at 1,500 ft. for first trip on Blériot impressed crowd greatly. M. Salmet's lending him his machine was very sportsmanlike.

Eastbourne.—Mr. Gordon England turned up to test Bristol biplane, which had been giving a lot of trouble, chiefly owing to petrol and oil tanks. He made one or two flights with Mr. Webb as passenger, but was forced to land outside aerodrome owing to choked petrol pipe. Mr. Fowler was also flying.

Edinburgh.—Mr. B. C. Hucks and his Blériot, enlisted by Conservative Candidate, Major Hope, as canvasser in Midlothian election. Started from field near Arthur's Seat and made half an hour's flight round Edinburgh, showering leaflets from his machine as he flew. First time an aeroplane had been used for electioneering, and might quite possibly have had effect in producing the narrow majority of 32 which resulted. Towards evening Mr. Hucks made another flight towards Portobello, and then back almost to Forth Bridge, returning across Edinburgh at 3,000 ft. Humorous situation of Protectionist canvasser performing on French-built machine.

Windermere.—Day of much flying. Mr. Adams out with pupil morning and afternoon for long runs. Mr. Gnosspelius doing good straights on his Blériot-type machine. Then Mr. Stanley Adams took Mr. Gnosspelius's machine out, and finally Lieut. Trotter took "Water Hen's" lever for some taxying and short, low straights.

TUESDAY, September 10th.

R.F.C. Central School.—Capt. Fulton on Avro 405 six flights, two each with Capts. Becke and Salmond, one with Lieut. Longmore, R.N., and one with another passenger. Major Higgins twice and Lieuts. Waldron and Abercromby each once on Avro 404. Lieut. Longmore, R.N., on M. Farman 403 once with Lieut. Cholmondeley and once with Major Trenchard. Also on Short 402 twice with Capt. Risk. Lieut. Cholmondeley twice, Major Trenchard once, and Lieut. Young once on same machine. Capt. Broke-Smith on Bristol 408 once alone and once with Asst.-Paymaster Trewin. Major Gerrard, R.M.L.I., on Short 401 once alone and once with Lieut. Courtney. Lieut. Lushington, R.M.L.I., twice, and Lieuts. Hubbard, Winfield-Smith, and Anderson each once on same.



Engineer-Lieutenant Briggs, R.N., one of the latest Naval Pilots.

Lark Hill.—BRISTOL SCHOOL: M. Jullerot on biplane. Mr. Pixton on monoplane with passenger.

Hendon.—AT BLERIOT SCHOOL, M. Pierre Gratien (new pupil) joined school.

Brooklands.—AT VICKERS SCHOOL, in early morning, Mr. Barnwell made most excellent flight on No. 5, taking machine up to 1,500 ft., and descending in spiral glide. Mr. Geere and Capt. Stott both flying straights and curves on No. 3.

AT SOPWITH SCHOOL, Mr. Hedley first out in morning on school Farman, afterwards handing machine over to Capt. Ellington, who flew circuits in very good style.

AT BRISTOL SCHOOL, Mr. England testing. Mr. Merriam with Capts. Reid and Gibbon. Mr. Bendall with Capt. Gibbon. Mr. Merriam with Capt. Reid and Lieut. Loultcheff. Lieut. Stopford, Capts. Price and MacDonell, Lieuts. Glanville, Penn-Gaskell, MacLean, and Mr. Payze alone.

Eastbourne.—Mr. Gordon England again flying Bristol biplane; also Mr. Hammond, but as engine did not pull well she was brought back.

Windermere.—Lieut. Trotter practising rising, alighting, and straights with "Water Hen" for over an hour.

WEDNESDAY, September 11th.

R.F.C. Central School.—Capt. Fulton on Avro 405 three times, and once with Air Mechanic Higginbottom. Capt. Becke three times and Capt. Salmond twice, on same machine. Major Trenchard and Lieut. Cholmondeley each once on Short 402. Capt. Broke-Smith twice on Bristol 408.

Brooklands.—No flying throughout day owing to high wind.

Lurgan (co. Armagh).—M. Salmet on his Blériot gave exhibition flight at local Horse Show, some 10,000 people present.

Waterloo (Liverpool).—In strong easterly wind Mr. Melly started on two-seater to get to the Wirral Agricultural Show, but finding wind too bumpy landed on beach after flying a mile, and returned to hangars.

THURSDAY, September 12th.

R.F.C. Central School.—Capt. Fulton once and Capts. Becke and Salmond each twice on Avro 405. Major Higgins twice and Lieut. Abercromby once on Avro 404. Capt. Fulton with Capt. Risk on Short 402, then Capt. Risk went for his brevet and took it. Lieut. Shepherd twice on same machine. Asst.-Paymaster Trewin for first half of brevet test on Bristol 408. Lieut. Winfield-Smith with Lieut. Courtney on Short 401, and Capt. Fulton, also with Lieut. Courtney on this machine. Lieut. Longmore, R.N., on M. Farman 403, and Major Gerrard on Nieuport 409, left school for Oxford en route for manœuvres area.



Staff-Sergeant Thomas, the first pilot to take his certificate at the Central Flying School.



Mr. Kershaw, the youngest Grahame-White pilot.

Lark Hill.—BRISTOL SCHOOL: Mr. Pizey with "Capt." Penfold and Mr. Lywood. M. Jullerot with Lieut. Mehmet Ali.

Hendon.—AT W. H. EWEN SCHOOL pupils unable to get in any flying practice on account of strong wind. The 60-h.p. two-seater Caudron being tuned up, M. Galy took it out for trial flight. Rising to 500 ft., he made several circuits, flying surprisingly steadily considering bad conditions.

Lieut. Spencer Grey, R.N., on 70-h.p. Deperdussin, left for Manœuvres, and arrived at aviation camp at Hardwick, 44 miles in 55 minutes.

Brooklands.—High wind all day, becoming slightly better towards evening, when at 7 o'clock Mr. Knight took Vickers School Farman for circuits.

Brighton-Shoreham.—Mr. Blake (new pupil) rolling.

Eastchurch.—Lieut. Hewlett, R.N., with Lieut. Berne, R.N., as passenger, put in good work on 38. Lieut Seddon, R.N., doing circuits on school biplane 34. Lieut. Hewlett, with Gunner Bobbett as passenger, went several circuits of the island on 38.

Waterloo (Liverpool).—Mr. Melly again started in perfect weather for second day of Wirral Show, but on approaching Aintree racecourse engine began to miss so badly that he landed there. After finding one damaged plug he started with intention of returning to Waterloo, quite forgetting that tide would be high at mid-day, and hastily decided to make back for Aintree. After couple of hours' wait again started for Waterloo, which reached with difficulty, engine still giving trouble. Later in evening he took out the "Y" engined machine for first time, and after two successful straights of 1½ miles each did fine figure 8, banking well and terminating with neat vol plané from about 60 ft. Machine behaved admirably, and is greatly looked forward to by pupils who are now to obtain their brevets.

Windermere.—Lieut. Trotter, after several good turns on "Water Hen," eventually made mistake and buckled under-carriage badly.

FRIDAY, September 13th.

R.F.C. Central School.—Capt. Fulton on Avro 404 with Air Mechanic Higginbottom, and then Higginbottom six straights. Capt. Risk three times, Lieut. Shepherd twice, and Lieuts. Hartree and Cholmondeley each once on Short 402. Asst.-Paymaster Trewin finished brevet tests on Bristol 408. Capt. Fulton with Lieut. Courtney four flights on Short 401, Lieut. Courtney once. Capt. Fulton, with Asst.-Paymaster Trewin and Lieut. Courtney went for brevet, but engine failed.

Lark Hill.—Bristol School: Mr. Harrison with Mr. Lywood, "Capt." Penfold and Mr. Lucena. M. Jullerot with Turkish Lieuts. Fethe, Aziz, Mehmet Ali, Sofoet, Fazil and Sabri. In evening Messrs. Pizey, Harrison, and Jullerot busy with tuition.

Hendon.—Grahame-White School opened at 6 a.m., weather calm. Messrs. Fuller, Small and Wilson doing straights. Mr. Roupell 20 minutes on 35-h.p. Blériot, straights and circuits. Lieut. Small and Mr. Wilson straights on G.-W. biplane. Mr. Wynne out for brevet on G.-W. biplane, but only succeeding in making one figure 8. Lieut. Allen and Mr. Holscher straights. Capt. Kunhardt rolling on G.-W. biplane. Commander Yeats-Brown straights. Capt. Kunhardt up with Mr. L. Noel. Commander Yeats-Brown, R.N., and Messrs. Small, Wilson, and Allen doing straights. Commander Yeats-Brown making circuits 15 mins. In afternoon Mr. Bayetto rolling on 25-h.p. Blériot. Mr. Wynne circuits on G.-W. biplane. Mr. Fowler rolling and straights, and Mr. Bayetto rolling, both on 25-h.p. Blériot. Lieut. Allen on G.-W. biplane. In evening, Commander Yeats-Brown doing figures of 8 on G.-W. biplane. Mr. Lan-Davis rolling on 25-h.p. Blériot. Capt. Kunhardt rolling on biplane. Mr. Roupell circuits on 25-h.p. Blériot.

At Blériot School.—Despite fact that both day and date were ominous of bad luck, an excellent day's work was accomplished. Messrs. Teulade and Clappen doing good straights on L.B.3; M. Gandillon promoted to L.B.2, got off earth for first time by himself; and Messrs. Reilly and Gratien doing straight rolls on L.B.1.

At W. H. Ewen School pupils out at 5 a.m. in thick fog, which cleared away about 6. Mr. Sydney Pickles after test flight on 35-h.p. Caudron, instructing Messrs. Sutton, Edmund, and Apcar on same. Mr. Sutton went for brevet on Caudron and passed in excellent manner, flying most of time at 350 ft. Thereafter Messrs. Edmund and Apcar had good practice. Mr. Sydney Pickles again made beautiful flight on Caudron, reaching nearly 1,000 ft., where he switched off and executed a superb spiral glide. M. Baumann hard at work instructing pupils on monoplanes Nos. 1 and 2, Lieuts. McMullen and Bayly and Messrs. Conran and H. James all making splendid progress in straights on monoplane No. 1, while Mr. L. Russell was rolling. Capt. Chamier and Mr. J. H. James doing nice flights at 20 ft. and 30 ft. on monoplane No. 2, with good landings. After breakfast School again out from 10 till 1. A faulty cylinder having been replaced, Mr. Sydney Pickles took 35 Caudron up to 600 ft. Machine then handed over to Mr. Edmund, who made two circuits, flying very steadily, and proved the Caudron to be a strong machine machine, for, notwithstanding landing on one wing tip, nothing whatever was broken. Mr. Apcar then mounted Caudron and made good flights at 20 ft. and 30 ft. Towards 6 p.m. all pupils again out. Mr. Sydney Pickles doing nice exhibition on 35 Caudron, and Mr. Ewen also on same machine, taking Mr. Travers as passenger.

At Deperdussin School, in morning, Lieuts. Tucker and Hawker and Mr. Andrews doing straights on brevet machine. Messrs. Phelps and Whitehouse rolling on taxi No. 1. Mr. Andrews made a bad landing and had a nasty smash on the brevet machine through a biplane crossing in front of him. Mr. Brock straight flights on racer.

Brooklands.—Great change in weather, flying all day for first time for many months.

At Sopwith School, morning, afternoon and evening, Mr. Perry and Mr. Hedley on school Farman. Capt. Ellington took advantage of fine day to take first half of brevet in most finished style. Lieut. Marks flew some very good circuits during afternoon on school Farman.

At Vickers School, Nos. 5 and 6 hard at work all day. Messrs. Knight, Barnwell and Geere flying many circuits, while Capt. Stott and Mr. Bebbington (new pupil) put in straights on No. 3. Mr. Macdonald did fine performances on No. 6 in usual excellent style.

At Hanriot's, Messrs. Sippe and Sabelli for many flights on single-seater.

At Avro School, re-appearance of taxi-cab monoplane in hands of Mr. Barnwell for trial. After one of two straights machine broke off front part of her skid in landing, causing her to turn turtle. Mr. Barnwell fortunately unhurt, but machine rather bent.



Mr. E. F. Sutton, the first British pilot to take his certificate on a Caudron.

At Bristol School Mr. Merriam with Capt. Gibbon. Mr. Bendall also with Capt. Gibbon. Lieuts. Stopford, Glanville, and Penn-Gaskell alone. Mr. Merriam with Mr. Hall and Lieut. Loultcheff. Mr. Bendall testing engine. Mr. "Darracq" alone. Mr. Merriam with Capt. Price and Lieut. MacLean, and both afterwards alone with good landings. Mr. Payze doing straights, when wheel came off, breaking propeller. In evening Mr. Merriam alone, then with Capt. Reid. Mr. Bendall testing another biplane and taking Capt. Gibbon up. Mr. Merriam with Mr. Hall and Lieut. Loultcheff. Mr. Bendall with Lieut. Stopford. Mr. Merriam with Lieut. Glanville, latter for two circuits alone. Capts. Price, MacDonell, Lieut. Penn-Gaskell, and Mr. "Darracq" circuits alone. Lieut. MacLean figures of 8. Mr. Merriam winding up work with spiral glide with engine cut off.

Brighton-Shoreham.—Messrs. Newton-Smith and Humphreys each did circuit at 80 ft., effecting good landings in front of hangars.

Eastbourne.—Mr. Hammond took up Foord, one of the aerodrome mechanics, and reached a height of 1,200 ft. quite easily, but on starting up again found the engine had left about 500 revs. up aloft and no amount of coaxing could get them back. Mr. Fowler was flying the Gnome Blériot and Mr. Gassler smashed up the 28-h.p. Anzani Blériot.

Eastchurch.—Before breakfast Lieut. Seddon, R.N., flew first half of brevet test which he completed satisfactorily. Wind springing up he waited until evening to complete, which he did. Lieut. Gregory, R.N., on 34. Capt. Gordon, R.M.L.I., flew several circuits of island on T.5, with Lieut. Berne, R.N., as passenger, to test machine before starting for Hardwicke, and then went off with Reece as passenger, and arrived there without trouble.

SATURDAY, September 14th.

R.F.C. Central School.—Capt. Fulton with Air Mechanic Higginbottom straights, and Higginbottom four straights and then two circuits under instruction, on Avro 404. Capt. Fulton with Lieut. Courtney on Short 402, then Lieut. Courtney went for brevet and took it. Lieut. Shepherd once on this machine. Major Gerrard on Short 401 four flights, taking Air Mechanics Dismore, Copper, Barker and Kirk for tuition. Lieut. Shepherd once on same machine.

Lark Hill.—Bristol School: Mr. Pixton and Mr. Pizey out, after which school work commenced. Mr. Pixton also out on monoplane.

Hendon.—Grahame-White School opened at 6.30, under Mr. Turner. Mr. Roupell on Blériot circuits. Same pupil out again at 7.50. Mr. Lan-Davis rolling on Blériot. Fine competition and exhibition flying in afternoon as per special report.

At Bleriot School, Messrs. Welburn, Teulade and Clappen all doing good straights on L.B.3, M. Gandillon on L.B.2, and M. Gratien rolling on No. 1.

W. H. Ewen School out at 6 a.m. Mr. Sydney Pickles after nice flight handed 35 Caudron over to Messrs. Apcar and J. H. James, who each made several good flights. Mr. Edmund then did several circuits on Caudron, flying very steadily, and landing with precision. Mr. Ewen gave passenger flights to Messrs. Gilbert, Tyler, and Freshney. M. Baumann had Lieuts. Bayly and McMullen and Mr. Eric Conran doing good flights and landings, while Mr. L. Russell was making rapid progress rolling on No. 1 monoplane. Capt. Chamier was making rapid progress rolling on No. 1 monoplane. Capt. Chamier and Mr. H. James both flying well on No. 2 monoplane.

At Deperdussin School, in morning, Capt. MacDonell, Lieuts. Tucker and Hawker, and Messrs. Andrews and Spratt all doing straights on taxi No. 2. Messrs. Phelps, Whitehouse and Durand all rolling on taxi No. 1. Cadet Robinson several straights on brevet machine, and Mr. Gill circuits on the two-seater.

Brooklands.—At Sopwith School, in morning, Capt. Ellington finished his brevet tests, flying very well at over 200 ft. and landing on mark en vol plané. In afternoon Mr. Hedley for circuits on school Farman and afterwards giving instruction to Major Cameron.

At Hanriot's, Mr. Sippe on single-seater for about 20 mins. in early morning.

At Vickers School, in afternoon, Mr. Macdonald flying with passengers at over 2,500 ft. Mr. Knight on No. 5 for circuits until engine gave out over sewage farm. Situation saved very cleverly by making a sharp banked turn to the left and landing nicely on good ground. Capt. Stott put in straights on No. 3.

At Bristol School, Mr. Bendall testing conditions, then with Capt. Reid for tuition. Mr. Merriam testing solo machine, followed by Lieuts. Glanville, MacLean, and Capt. Price, all doing figures of 8. Two latter then for brevets, which were taken in good style, landing perfectly. Mr. Merriam up again with Lieuts. Hanlon and Loultcheff and Capt. Reid. In afternoon Mr. Merriam found conditions too bad for school work. An hour later Mr. Bendall testing, and Mr. Merriam then with Lieuts. Loultcheff and Capt. Reid. Mr. Bendall instructing Mr. Hall. Capt. MacDonell two circuits. Lieuts. Glanville and Penn-Gaskell for circuits.

Belfast.—An excellent exhibition of flying was given at Belfast by Mr. Astley and Mr. Valentine, assisted by M. Salmet, a crowd estimated at some 20,000 witnessing the performances, which were organised to compensate Belfast for the non-arrival of the competitors on the previous Saturday.

Eastbourne.—Engine taken out of Bristol and one of Aerial Post engines put in, which flew splendidly, Mr. Hammond doing all kinds of tricks and taking Messrs. Jerwell, Chapman, and Napier for several long cross-country flights. Mr. Fowler also flying Blériot well.

Eastchurch.—Lieut. Parke, R.N., flying nearly all afternoon on Short monoplane. Lieuts. Hewlett and Berne, R.N., flew 38 to Dover, had to land one mile short on account of failure of Gnome engine valve.

Windermere.—Mr. Adams out with "Water Hen." Found repairs satisfactory.

SUNDAY, September 15th.

Hendon.—Fine exhibitions, as in special report.

Lark Hill.—Bristol School: Mr. Pizey and M. Jullerot testing. Mr. Harrison with Mr. Lywood. "Capt." Penfold and Capt. Lucena. M. Jullerot with a number of passengers. Mr. Pixton out on monoplane. In evening school very busy.

Brooklands.—At Sopwith School, in afternoon, much flying. Mr. Sopwith, Mr. Perry and Mr. Hedley in turn on Farman for competition. Afterwards, Lieut. Marks and Mr. Hawker for circuits.

At Vickers School, in afternoon, Mr. Macdonald with passengers for long flights at over 2,000 ft. Capt. Stott for straights on No. 3, showing great improvement.

At Hanriot's, Mr. Sippe and Mr. Sabelli flying excellently for long time on single-seater.

At Bristol School, Mr. Merriam and Mr. Bendall exhibitions. Captain MacDonell figures of eights, also Lieuts. Stopford, Penn-Gaskell. Mr. "Darracq" circuits. Lieut. Hanlon straights. Mr. Merriam with Lieut. Loultcheff. Mr. Bendall twice with Capt. Gibbon.

Owing to cross-country race having fallen through by reason of small number of probable starters, a bomb-dropping and alighting competition was at last moment organised in its place with following result:—First prize (£5), Mr. T. O. M. Sopwith (Sopwith-Farman biplane), 18ft. 10in. (bomb), 9ft. 6in. (alighting); second prize (£2), Mr. H. Spencer (Spencer biplane), 5ft. 2in. (bomb), 73ft. (alighting); third prize (£1), Mr. Copland-Perry (Sopwith-Farman biplane), 25ft. 4in. (bomb), 61ft. (alighting); Mr. F. W. Merriam (Bristol biplane), 38ft. 2in. (bomb), 53ft. (alighting); Mr. Snowden Hedley (Sopwith-Farman biplane), 20ft. 4in. (bomb); Mr. Bendall (Bristol biplane), 39ft. 3in. (bomb).



Mr. Travers bomb-dropping from the 70-h.p. Farman at Hendon on Saturday.

Entries for relay race to be held on Sunday, September 22nd, 1912, are:—Messrs. Sabelli or Sippe, Hanriot; T. O. M. Sopwith (Farman); Copland-Perry (Farman); A. Knight (Vickers); F. W. Merriam (Bristol); Macdonald (Vickers); Snowden-Hedley (Farman); H. Spencer (Spencer).

Eastbourne.—A great day. One or more machines in air continually from 2 till 6 p.m. Mr. Hammond doing flights over town and sea-front and afterwards taking up Messrs. Jerwell and Yates for short flights, then up with Mr. Napier (new pupil), and flew to Bexhill at about 3,000 ft. Mr. Fowler flying Gnome Blériot. Later Mr. Yates flew Gnome Blériot about four circuits, landing well.

Eastchurch.—Lieut. Hewlett, R.N., returning from Dover, ran into dense clouds, and had it not been for the compass, clinometer, and barograph, he might not have had such a satisfactory journey; for minutes at a time he could hardly see the ends of the machine on account of mist.

The Week-end at Hendon.

Last Saturday's flying at Hendon, despite the dull, misty weather, was uncommonly good, and revealed to the world a new star flier of the first class in the person of Mr. Sydney Pickles, who performed the astonishing feat in the altitude contest of reaching 2,850 ft. on Mr. Ewen's little 35-h.p. Caudron biplane. Mr. Desoutter had already been up to 2,000 ft. on the old Gordon-Bennett Blériot (still without the reinforced lower planche), but he came down because he kept on losing sight of the aerodrome in the mist.

Mr. Pickles started just as Desoutter landed and climbed till the little engine refused to take him any further. He kept as nearly as possible over the aerodrome the whole time, so as to keep it in sight as much as possible, and, though the mist high up hid him from view at times, he was never far away. The performance itself, and his long glide and excellent landing, definitely places him amongst our best pilots.

Early in the afternoon a speed handicap was run off, which was productive of some unexpected excitement, for Mrs. Stocks starting off the limit mark found that the old 35-h.p. Blériot would not lift with the wind behind, so she rolled precariously about half-way round the course before finally stopping, facing the fence over by the railway bank. Desoutter, on the Gordon-Bennett Blériot, did almost the same thing when the race actually started some time afterwards. Mr. Travers on one of the old Grahame-White box kites came down owing to engine trouble after a couple of laps, so Mr. Noel, with Mrs. Stocks as passenger, on the 70-h.p. Farman, flew over alone.

Thereafter there was a bomb-dropping competition, which seemed to cause considerable interest. This was won by Mr. Travers with an average distance of 55 ft. from the bull's-eye, his best shot being 26 ft. distant. Mr. Noel was second with an average of 63 ft. and a best of 48 ft., the other competitors being Messrs. Turner, Pickles and Desoutter.

In the course of the afternoon Mr. F. H. Hall, who has bought Mr. Crawshay's Blériot, made a number of flights, and though his handling of the machine at the present moment seems at times a little uncertain, he evidently has plenty of pluck, and seems likely to make quite a good flier. Lieut. Porte, R.N., made a capital flight on the 100-h.p. Anzani-Deperdussin merely by way of tuning up the engine after its return from Ireland, and this machine may be expected to do a really big performance before very long.

A considerable addition to the interest of the afternoon was the appearance of Capt. Reynolds, Royal Flying Corps, on one of the Army Maurice Farmans, who took the machine up for a test flight, and made a prolonged tour over the surrounding country with Major Moss as observer. He handles the machine particularly well, and flies with splendid judgment. After he returned from his practice M. Verrier took the machine up to test it, and flew with all the grace to which he has accustomed frequenters of Hendon, though naturally, being a Service machine, he did not play any of his usual tricks with it.

On Sunday there was the usual good crowd and some excellent flying. At 3.30 p.m., Mr. L. Turner made a fine exhibition flight on H. Farman 70-h.p. machine, and was out again immediately afterwards on the same machine with Lady Lambert as passenger. Impressive flights were made by M. Desoutter on the 50-h.p. Gordon-Bennett-Blériot, the machine being fitted with an electric horn with which he sent messages by Morse code. Mr. Gordon Bell, a new-comer to Hendon, was out on the 35-h.p. Deperdussin. Mr. Sydney Pickles made another fine altitude flight on the 35-h.p. Caudron biplane. Mrs. Stocks was flying well on the 35-h.p. Anzani Blériot. Mr. Hall was again out on 50-h.p. Blériot. Mr. Blackburn did a number of circuits on a Grahame-White 50-h.p. school biplane. Capt. Reynolds and Major Moss left for Cambridge on the military Maurice Farman. Messrs. Turner and Noel were busy all the afternoon and evening until dusk carrying passengers. Altogether a very fine day's work.

More Chauviere Successes.

The aviator Frantz left Paris on the morning of the 10th inst., competing for the Pommery Cup, on a Savary biplane fitted with an "Intégral" propeller. Also at the hydro-aeroplane meeting at Tamise, Renaux, Benoist, Gobe, Weymann, Molla, Gaubert and Chamet, all used "Intégral" propellers. And last, and most important, Fourny, competing for the Criterium of the Aero Club of France, on a Farman biplane, beat the world's record for distance and duration with an "Intégral" propeller, flying for 13 hrs. 17 mins. without stopping, and covering 677 miles.

In his recent successful attempt on the altitude record M. Garros used a Chavière Intégral propeller on his Blériot, thus adding to the already long list of rceords held by that excellent propeller. M. Védrines, in winning the Gordon-Bennett race in America, also used an Intégral

"Practical Gyroscopic Balancing."

This little book by Professor Herbert Chatley deals in an elementary but accurate manner with the nature and habits of the gyroscope, and with the application of this interesting instrument to the balancing of aeroplanes. Commencing in the two first chapters with an analysis of the actions and forces involved, the author proceeds to show the possibilities and the limitations of the plain gyrostat, and then very clearly ascribes the method, due to Brennan, of producing a forced precession, and thereby increasing the forces available for balancing, which has rendered possible the complete stabilisation of the monorail car.

After a number of interesting examples of the application of the gyroscope to the balancing or steadying of ships, torpedoes, and gun platforms, we are led to the question of the stabilisation of aeroplanes. The subject is necessarily dealt with briefly, and the difficulties likely to be met with scarcely seem to be given the importance they deserve. A passing mention of the certainty of a gyrostatic control, showing the answer of the machine to voluntary control by the pilot, is made. The fact that gyrostatic controls are subject to oscillation or "hunting" is noted in the description of the Brennan system, but the particularly objectionable nature of both these characteristics in connection with aeroplanes does not appear to be recognised.

A further chapter is devoted to the gyrostatic effect of rotary engines and propellers, and the magnitude is suggested as being negligible. Unfortunately, Professor Chatley takes the average speed of a Gnome engine as 900 r.p.m. instead of 1,150 r.p.m., and considers the case of a machine turning in a curve of 600 ft. radius at 60 ft. per second. Now 150 ft. radius is not a very sharp turn, and 90 ft. per second (61 m.p.h. about) is not an abnormal speed. Taking these values instead of the author's, the gyrostatic torque attains about nine times the value given, which agrees much more closely with the effects actually observed.

A very complete example of the method of designing a gyroscope is given in Appendix A, while Appendix B mentions the methods by which the complete mathematical theory of the gyroscope may be attacked. The book can be confidently recommended as giving in a compact form the fundamental principles of the gyroscope, without the use of unduly complicated mathematics.

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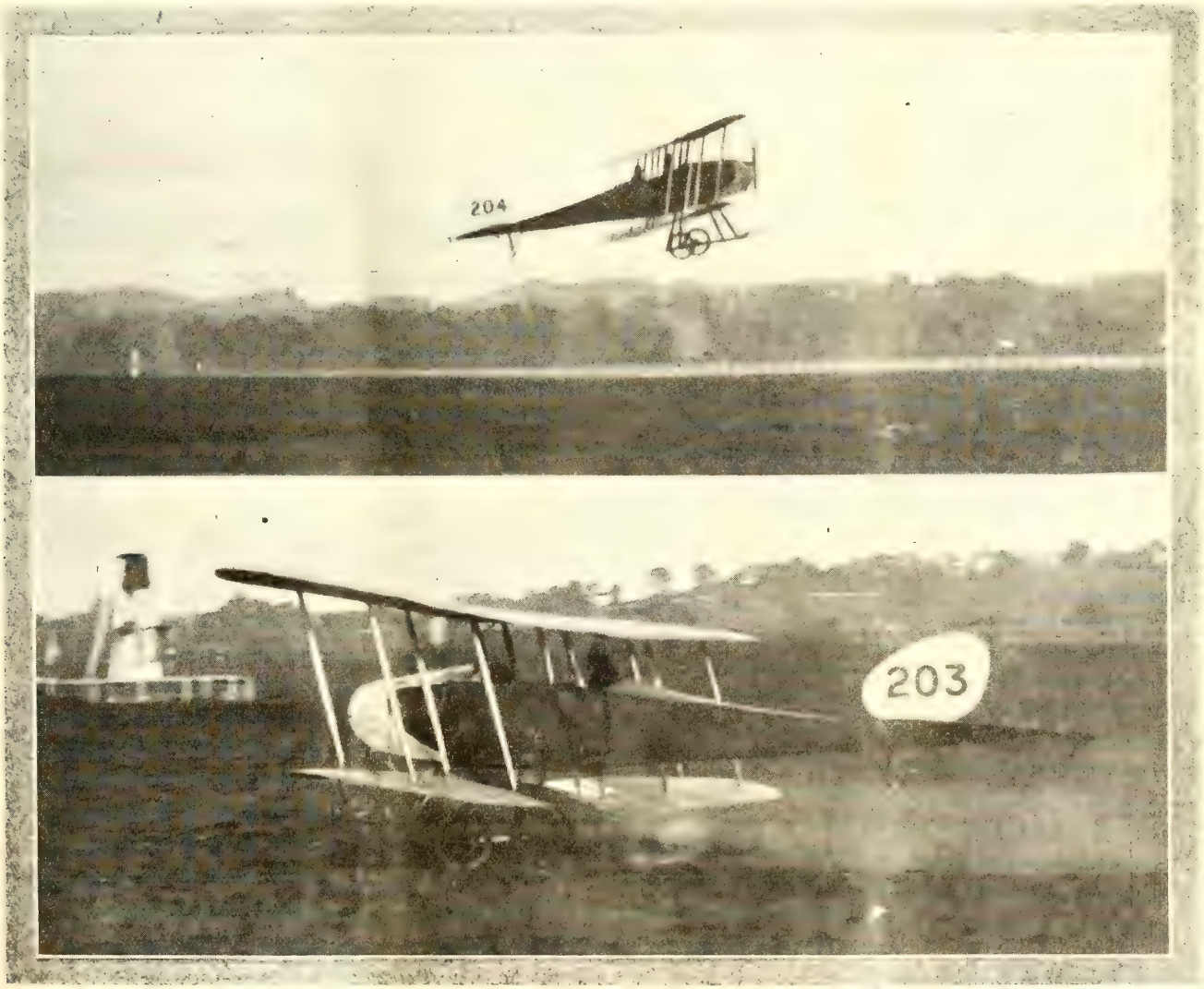
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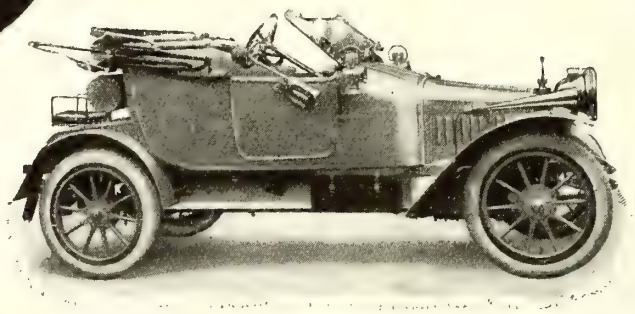
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The Manœuvres—and After.

The fine flying done by the officers of the Royal Flying Corps, both of the Naval and Military wings, during the recent manœuvres, confirms, if any confirmation was needed, the high estimate that has been formed of their ability and pluck as fliers by those who know what really good flying is.

Unfortunately the correspondents of the various papers who were represented in the manœuvres area have been so carried away by the enthusiasm which these excellent performances have generated, that the majority of their readers are quite likely to acquire the idea that all is now as it should be with our aerial defence forces. Nothing can be so bad for the future necessary development of the Flying Corps as that the British public who provide the sinews of war should be lulled into a sense of false security by a complacent idea that all is well and that the manœuvres have shown the impossibility of our little army being out-manœuvred by any attacking force, thanks to the all-seeing eyes of our aerial scouts.

As a matter of fact, all that has been done is to afford the pilots of the Royal Flying Corps some excellent practice under exceptionally good conditions, to upset the plans of general officers in a most annoying way, and to provide those soldiers who have not hitherto taken any particular interest in aviation with something fresh to think about.

To this last extent the effect is wholly to the good, for as soon as the various regiments have returned to their usual stations we may expect a remarkable increase in the number of army pupils at the various aviation schools. Not only will the performances of the aeroplanes have infected the junior officers with an interest in the new vehicle, but they will almost certainly have demonstrated to the senior officers the practical use of the air scout, so that it should be considerably less difficult for the young officer who wants to learn flying to get leave to do so. Hitherto undoubtedly battalion commanders have been loth to grant leave to those wishing to learn, not only because the temporary loss of a company officer would disarrange the routine of the regiment, but because the senior officers have honestly believed that learning to fly was merely wasting time and risking lives on a silly and useless craze.

Now, however, it must have become obvious that even if an officer does not intend to join the Royal Flying Corps, it is just as well if he knows how to fly, in the same way that it is just as well if an infantry officer knows how to ride.

Necessary Expansion.

However, to return to the original point—the danger is that people may gather from the glowing accounts in some newspapers of the flying during the manœuvres that we have all we need in the way of quantity and quality of men and machines. We are still far from the happy day when we can claim so much.

At the moment, though all of them are keen, willing, and as brave as can be, we have scarcely a dozen Service aviators who could be honestly called first-class fliers, and we ought to have several hundreds in the course of the next twelve months. The Central Flying School at Upavon is doing its best, and the training there is carried out in the most thorough manner possible by the small staff and with the few machines available, especially as the majority of the machines are of a hopelessly antiquated type. But, on the lines laid down for taking only a certain number of pupils in each three months' course, it would take years to train the number of pilots we need.

In the matter of machines we are even worse off, for, as was pointed out last week, we have only a bare thirty machines fit for active service, and that is a generous estimate based on air-worthiness rather than on the work most of these machines could do if put up against an enemy well equipped with first-class fliers on really fast machines. If we reckon on the latter hypothesis, it is doubtful whether we could put up a dozen machines fit for the work, and, strangely enough, that about tallies with the number of pilots we have got capable of flying them, so that we may reckon our Flying Corps is worth about a dozen machines and pilots of the first class.

This fact discounts at once the results obtained by the air scouts on manœuvres, chiefly because by no means all of the first-class dozen were employed, and in consequence the majority of the information obtained was acquired from slow machines at a height of about a thousand or two feet. Obviously air scouts in real war who tried to work under such conditions would be wiped out of existence in a few minutes.

It is no use quoting the success of the Italians in Tripoli in contradiction. They have merely been playing at the game. They have had no aircraft of any kind up against them, and they have been flying over about the worst shots in the world. Even so, one Italian officer was wounded and had his machine hit in several places when he came down accidentally to 900 feet, so one may imagine how much use 1,000 feet altitude would be against modern guns and musketry.

The Flying Corps know the whole thing was merely of a piece with the careful arrangement of spectacular battles at places easily accessible by those in high places, or the skilful placing of regular troops so that they may be captured or put out of action by

Territorials, for the encouragement of the latter; but the newspaper people seem to have taken the aeroplanes quite seriously, and so do their readers.

Still, it all makes for an increase of public interest in flying, which is a good thing, at any rate. But do not let any reader of THE AEROPLANE go away with the idea that all is well. We need many more machines of very much higher efficiency. We need many more pilots of as great skill and as much pluck. And we need a very much clearer programme as to the future intentions of the Government.

The Industry and the Intentions of the Government.

It has been said publicly by the present Minister of State for War that it is the intention of the authorities to foster a healthy aeroplane industry which shall be able to supply machines in quantities in time of need. At the present moment the industry feels decidedly unhappy about the intentions of the said authorities, chiefly on account of the order that no monoplanes were to be used on manœuvres. The unrest caused by this order extends not only to firms who make monoplanes alone, but to makers of biplanes also, for constructors naturally refuse to believe that the motive behind the order was simply a belief that all monoplanes are dangerous simply because they are monoplanes. Such an idea is palpably absurd in the face of the daily performance of civilian aviators here and abroad on monoplanes of various makes. The wonderful speed records of Prévost and Védrines on Deperdussins, the height records of Garros on the Blériot, and Legagneux on the Morane, the continual cross-country flying and exhibition work of men like Astley, Valentine, Hucks, Slack, Hamel, Salmet, Brindejonc des Moulinais, Gobé, Frey, and others, on Deperdussins, Hanriots, Blériots, Moranes, and Nieuports, who have covered hundreds of miles without accident of any kind attributable to the machines as monoplanes, often on old machines which have already flown some thousands of miles without a proper overhaul, make any such assumption impossible even for the War Office and its advisers.

It is true that certain monoplanes belonging to the Royal Flying Corps are in such a shocking state of disrepair, owing to the carelessness or lack of knowledge of those responsible for their upkeep, that it would be murder to order anyone to fly them. But the order applied to all monoplanes, old and new, so that those interested had to seek some other underlying motive for the order.

Naturally, the first suggestion made was that political considerations lay behind the order. It was thought that the Government may be afraid that questions will be asked in the House when it reassembles for the Autumn Session, and that now the Secretary for War will be able to reply that the monoplane has been barred, and so no further accidents have occurred. There would be a certain amount of common sense in such a motive, for, owing to the fact that nearly all monoplanes land faster than the slow biplanes used on manœuvres, there certainly would have been more likelihood of accidents when landing as and how luck pleases, as pilots on manœuvres have had to do. Still, that hardly seems the likely reason, for a skilful pilot can pull a monoplane up nearly as sharply as a biplane.

Regrettable Mistrust.

Other members of the industry, who still mistrust the officials of the Royal Aircraft Factory, do not hesitate to ascribe the order to their influence. They allege that the Factory officials are continually afraid lest some other machine should eclipse in practice the performances of the de Havilland-Avro-Bréguet type of biplane known as the "B.E.," which has done so well, and is supposed to represent the last word in theoretical design.

On speed and lift for horse-power the "B.E." type has already been beaten by the modern Avro, and, strangely enough, none of the three Avros owned by the Army were employed on manœuvres. Also, the "B.E.'s" would be easily beaten in speed and climbing power by the Deperdussins and Blériot owned by the Flying Corps, let alone the Hanriots which the Corps does not own. Also the Blériot, and probably the Deperdussin, would beat it hollow on facility for observation. The Nieuports also, though not so good for observation, would fly rings round the "B.E.'s" for speed. In fact, the whole question of the bonâ fides of the Factory officials seems to have broken out again.

In support of this feeling, it has been stated to the writer quite seriously that at least two constructors when delivering machines ordered by the Royal Flying Corps have been deliberately led into damaging these machines so that they could not be accepted for the Service. The method alleged to have been adopted has been for the Factory official observing the test to instruct the pilot to land or roll along a portion of Laffan's Plain in which the surface is known to be so bad as to make sure of breaking the chassis, with the probability of damaging the rest of the machine.

This Laffan's Plain rolling test has always been unreasonably severe, for nearly the whole surface is far worse than one can fairly expect a machine to tackle unharmed, except it be an enormous powerful machine like the Cody, or one like the "B.E.," piloted by a man who knows all the bumps in the surface by name, and can dodge them. Also, it offers too many opportunities for unfairness, with the result that an official who is not absolutely above suspicion is always liable to be accused of picking the best ground for his friends and the worst for firms of whose methods or personnel he does not happen to approve.

The general idea seems to be that the Factory people are scheming to destroy certain firms and bolster up others, by deflecting orders from one set and getting the orders passed on to others who are in favour, irrespective of the merit of the work turned out by the different makers. Also, it is definitely stated that a highly placed official of the Factory recently announced that the Factory was able to turn out all the machines this country is likely to want, and intended to do so.

In the face of the public statements of the Superintendent of the Factory, Mr. Mervyn O'Gorman, it is almost impossible to believe that this ban on monoplanes and the conduct of certain officials at the Royal Aircraft Factory is, as is feared by some, all part of a big scheme to throw the whole supply of machines for the Flying Corps into the hands of the Factory and a few favoured manufacturers who will

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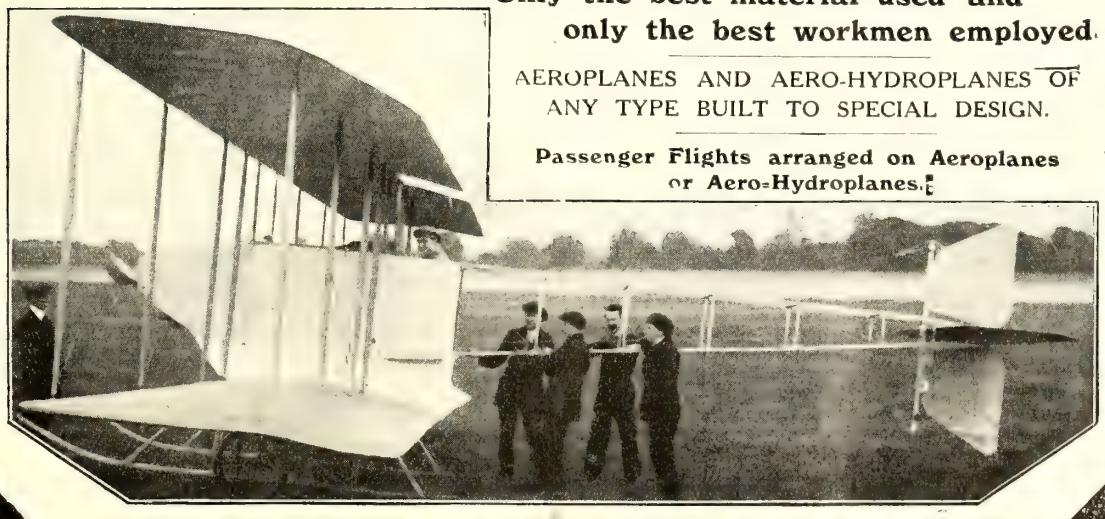
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be agreeable to make anything the Factory asks them to copy at a price. Personally, the writer refuses to believe it, but plenty of others do, so it will be just as well for all concerned if the naval and military authorities, in whom everyone has absolute confidence, can be persuaded to make a definite statement as to their own intentions, and their reasons—apart from the intentions and reasons of their civilian advisers—in refusing to allow monoplanes and certain biplanes to take part in the manœuvres.

Such an announcement would be doubly interesting in view of the fact that officers who flew monoplanes to the manœuvres area, but were not allowed to use them while there, have been allowed to fly them back home. One would have expected them to be forbidden to fly monoplanes under any conditions till the objections to the type were cleared up.

The "B.E." type of biplane is an excellent machine, but it is a long way from perfection. There are experienced designers who consider it to be dangerously light for the work it has to do, and it is open to various practical objections, purely from a military point of view. Consequently, one can scarcely assume, as yet, that it is so wholly excellent as to be made a standard pattern for use by the Royal Flying Corps, and that all other types are to be wiped out of existence in order that nothing but "B.E.'s" may be built.

Other machines, both monoplanes and biplanes, built by outside constructors, have their points of superiority, which make them more suitable for certain specific uses on active service. Absolute standardisation and interchangeability of parts is most desirable in service machines, but while the aeroplane of to-day bears about the same relation to the Service aeroplane of the future as the old Tower musket does to a Krag-Jorgensen, it is full early to throttle private enterprise and ingenuity by insisting on equipping the Flying Corps with machines which are designed by the stipendiary geniuses of the Royal Aircraft Factory, and refusing everything else.

The Royal Aero Club.

At the Committee meeting on the 17th inst., the following aviators' certificates were granted:—288, Lieut. Philip Shepherd, R.N. (Short biplane, Central Flying School, Upavon); 289, I. G. Vaughan-Fowler (Wright biplane, Eastchurch); 290, Lieut. G. Wildman-Lushington, R.M.A. (Short biplane, Central Flying School, Upavon); 291, John Laurence Hall (Blériot monoplane, Blériot School, Hendon); 292, Samuel Summerfield (Bristol biplane, Bristol School, Brooklands); 293, Edward Wallace Cheeseman (Bristol biplane, Bristol School, Brooklands); 294, Assistant Paymaster George Stanley Trewin, R.N. (Bristol biplane, Central Flying School, Upavon); 295, Ernest Frank Sutton (Caudron biplane, Ewen School, Hendon); 296, Lieut. John Wilfred Seddon, R.N. (Short biplane, Naval School, Eastchurch); 297, Harry George Hawker (Farman biplane, Sopwith School, Brooklands); 298, Lieut. A. C. Holms MacLean (Bristol biplane, Bristol School, Brooklands); 299, Capt. Charles L. Price (Bristol biplane, Bristol School, Brooklands); 300, Lieut. G. B. Stopford, R.F.A. (Bristol biplane, Bristol School, Brooklands); 301, G. W. England (Bristol monoplane, Bristol School, Salisbury Plain).

Letter from the Aero Club de France requesting the club to give its sanction to the granting of an aviator's certificate to Lieut. Barry Martin of the Wiltshire Regiment was considered, and the necessary permission granted.

Letter from the Aero Club of America requesting the club to give its sanction to the granting of an aviator's certificate to Mr. Alexander C. Beech was considered, and the necessary permission granted.

Public Safety and Accidents Investigation Committee.—Report on the fatal accident to Mr. Robert Cooke Fenwick, when flying on Salisbury Plain, on Tuesday, August 13th, 1912.

From the consideration of this evidence, the Committee is of opinion that the following facts are clearly established:—

(1) That the aircraft was the first of its type to be constructed.

(2) That the accident originated while the aircraft was about 200 ft. from the ground.

(3) That the aircraft was unstable fore and aft and not easily controlled.

(4) That there is no reason to believe that any part of the aircraft broke whilst in flight.

(5) That the aircraft, which had started two minutes before in a calm, flying in the direction of Fargo Wood, was struck by a gust, dived, straightened out and again dived, from which dive it never recovered, the aircraft striking the ground beyond the perpendicular. The aircraft was completely smashed and the pilot killed on the spot.

(6) The wind rose very suddenly, as shown by the wind chart, at about the time of the accident.

(7) The examination of the aircraft immediately after the accident showed all the control wires to be intact.

Opinion:—The Committee is of opinion that the cause of the accident was primarily due to the instability of the aircraft, which made it difficult to control in a disturbed atmosphere. That the point where the accident occurred is well known to be one where irregular disturbances of the air are prevalent under certain wind conditions. One of these disturbances must have struck the aircraft, and the aviator eventually lost control.

Report of the fatal accident to Mr. C. Lindsay Campbell, when flying at Brooklands, on Saturday, August 3rd, 1912, at about 6.20 a.m.

From the consideration of this evidence the Committee is of opinion that the following facts are clearly established:—

(1) That the accident originated, at a height of about 300 ft., by the aviator keeping the machine in a horizontal position after the engine had stopped, thereby losing flying speed.

(2) That the aircraft then side-slipped, but on diving regained speed and recovered its normal flying position. The engine, at this point, gave a few intermittent explosions, but failed to pick up, and the aircraft being again held in a horizontal position, once more underwent a side slip and vertical dive, hitting the ground at a steep angle.

(3) That there is no reason to suppose that the structural failure of any part of the aircraft was the cause of the accident.

(4) That the aviator was not thrown out of his seat and was not wearing either belt or helmet.

Opinion:—The Committee is of opinion that the accident was due to the aviator failing to appreciate the danger of keeping the aircraft in a horizontal position after the engine had stopped, thereby losing flying speed and control of the aircraft.

The Committee is also of opinion that since that portion of the aircraft in which the aviator was seated was undamaged, his life might have, perhaps, been saved had he used a helmet and belt, as his injuries were caused by his being thrown violently forward against the structure.

It was decided to recommend to the Executive Committee that the Advisory Committee for Aeronautics be approached with a view to certain experiments being carried out to obtain definite information concerning the conditions under which the shifting of the centre of pressure may occur, the effect of covering in the fuselage on various types of aircraft, and the effect of the position of the rudder and elevator.

It was further decided to recommend an expenditure not exceeding £50 for these experiments.

British Empire Michelin Competitions.

Intending competitors are again reminded of the following prizes:—

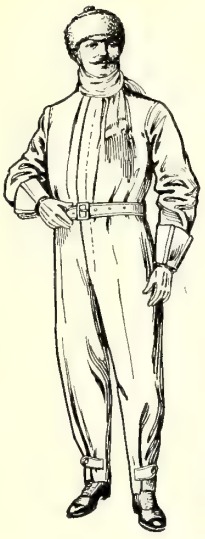
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Aeroplanes and the Manœuvres.

BY W. E. de B. WHITTAKER.

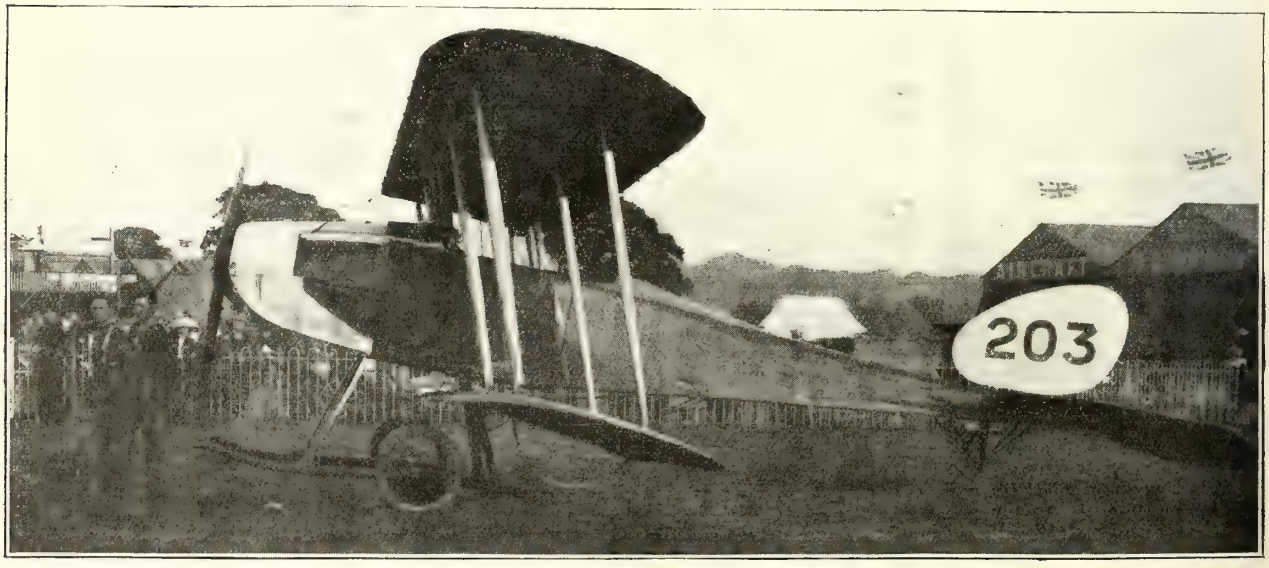
The work of an army is unceasing. The opportunity for the real practice of its functions is not common in modern days, but the training required to ensure success in the day of trial never ends. The men who have completed their service go and others come, and the same never-ending round continues. Each day has its lesson, each week its progress to show. The public—those who pay but are not interested—think not of this. They do not by instinct connect the name of the soldier with work. At certain annual periods the manœuvres take place. At the manœuvres the training of the past year is put to the test and the progress made is estimated. It is not a period of training in itself, but the bringing together for working in common of the different arms of the Service. General officers get experience in the handling of large bodies of men. Transport meets with something approaching the difficulties of real war.

The aeroplane has had some part in the organisation of an army for the last three years. Pilots have been trained and machines bought in fairly large numbers. And something of their real value has come to be understood in the world at large. But only in Tripoli, and then under unduly favourable conditions, have we had any real experience of military aviation in war. We can only surmise the possible effects of the use of aeroplanes in battle and campaign. Once a new invention is accepted as of value, one is apt to overestimate its qualities until experience teaches the usual lesson.

I believe that 1910 is the year in which aeroplanes first took part in manœuvres. Over the broad plains of Picardie many of France's greatest aviators assisted in the annual mimic war. Latham, Paulhan, Leblanc, Blériot, and others all played their part. I was present throughout the manœuvres, and the prevailing impression made on me was that the opposing generals were not so much surprised at the information brought by the air scouts as at the fact that any aviator arrived at all. Had real war reigned at the time the aeroplane would have disappeared from the scene of action in a week or two. Breakdowns were constant, and flights of most use were made at such low altitudes that the weakest of artillery and the most inefficient of riflemen could have wrought deadly execution amongst them. Yet the fact that flights were made and that some aerial reconnaisance was carried out made certain the future of the military aeroplane. With characteristic determination, and to aid in the execution of the one national resolve, France bought aeroplanes by dozens and trained pilots by scores. Every drawback was considered and some method of correction thought out. Transport was arranged, and the aeroplane took its definite place in the economy of things military. Soldier after soldier has given his life for the good of aviation, and the country has unmurmuringly accepted this as the price to pay. In 1911 the use of aeroplanes in manœuvres was desultory and undecided, as the "fifth arm" was in a state of transition. This year, however, there was no hesitation. Fifty aeroplanes and four dirigibles took their proper part. All went well with them, and the reports of the aerial observers were full and valuable. Rumour says that the entire formation of one army or the other was several times altered during the manœuvres as a result of aeroplane reconnaissance. After all the flying the first part of the manœuvres ended abruptly owing to General Marion, G.O.C. the Red Army, and his staff riding carelessly into the enemy's ranks. Of so much importance was aviation considered that General Galieni (G.O.C. Blue Army) held conferences with his aviation officers each evening in order to discuss progress.

More interesting than the flying, from a military point of view, was the use of mechanical transport for aeroplanes. The proper place for an aeroplane is in the air. When it is on the ground the trouble begins. Its fragility calls for great care in handling, and its bulk makes it difficult of removal. But the French Army, which is, at least, thorough in all that it attempts, has arranged a transport scheme for aeroplanes which had its first trial under semi-war conditions in the manœuvres. So far as it is possible to judge from the voluminous newspaper reports, the experiment seems to have met with success.

The greater numbers of aeroplanes engaged in the manœuvres travelled to each desired point by way of the air. So far as possible, the several machines of such escadrille kept within sight of each other, which simplified organisation to a great degree. No accidents of a serious nature occurred during the practice period, and the aerial observers did all that was expected of them by the supreme military authorities.



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In England the conditions were entirely different. Colonel Seely's military aviation scheme only came into being a few months ago. The old Air Battalion existed until the beginning of May. Thus the entire organisation of a new arm has had to be carried out in four or five months. The time has been insufficient to train the right number of men or buy the right number of machines. It has been necessary to attract the civilian aviator by the offer of commissions in the Service and a fairly high rate of pay.

The English manœuvres proved one thing—that an aeroplane is not infallible as a scouting agency. Lieut.-General Sir James Grierson, commanding the Blue (defending) Army, successfully concealed an entire division (the 4th) from the aerial scouts, and by a brilliant display of strategical and tactical skill he repulsed the attacking force and ended the manœuvres thirty-six hours before the prearranged time. So far as one can judge from the outside, the aeroplane made little alteration to the strategical or tactical dispositions of either side. The manœuvres proceeded on the same lines as in previous unenlightened years.

The lessons learnt from these annual practices are not open to the general public. No elaborate report is issued for the benefit of the man-in-the-street. One can only assume the course of events and the experience gained.

Two or three points stand out above all others. The necessity for efficient transport arrangements, the necessity for increased intensive training of aeroplane observers, and the necessity for a greatly increased grant of money for the expansion of the Royal Flying Corps. In a little over a week we have lost four officers and perhaps half a dozen machines. Taking into consideration the small size of the existing "fifth arm," this is rather a high percentage of wastage. Machines must be purchased and pilots and observers trained by the score. Half-hearted attempts are rarely rewarded with success.

If there is any blame to be apportioned for the lack of readiness of the Royal Flying Corps for immediate serious service, it is certainly not due to those officers in whose hands the executive duties of the "fifth arm" lie. They have done their best under unfavourable circumstances, and whatever success is gained is due entirely to their efforts.

German Military Aviation.

The German Empire is second only to France in the extent of its aerial fleet. Already more than 100 aeroplanes are owned by the Ministry of War and 5 by the Ministry of Marine. Of the 100, about 30 are Albatross biplanes, and another 30 are Etrich Rumpler monoplanes. Other machines are the Dorner monoplane, Grade monoplane (in Saxon Army), Euler biplane (Bavarian Army), Otto biplanes (16 of which are in Bavarian Army), and D.F.W. monoplanes and biplanes. The foreign machines owned by the Army are Blériot, Antoinette, and Bristol monoplanes, and H. Farman, Bréguet, Pfeil Lohner, and Bristol biplanes.

Five military stations have been formed at Doeberitz, Metz, Munich, Yuterborg, and Dantzig.

Over 100 officers possess their military brevet of efficiency and over 200 civilians have taken their pilot's certificates. The military flying corps will after October 1st consist of 26 officers, 40 non-commissioned officers, and 250 men. Bavaria has a separate organisation.

At the conclusion of the Imperial manœuvres, in which 24 aviators took part, several officer aviators have been decorated by H.M. the Emperor-King with the fourth class of the Order of the Crown. The names are as follow:—Lieutenants Albrecht (1st Railway Regiment), Hantehmann (25th Infantry), Vogel von Falkenstein (4th Grenadiers of the Guard), Fink (165th Infantry), Joly (24th Pioneers), Schmikaly (64th Infantry), and Klein (2nd Batt. Telegraphists).

Excelsior.

The art of aviation has had a short life as years go, yet the early days—the later months of 1908—seem an infinity away to those whose lives have become closely connected with aerial navigation. The old names are dying away. Death has had its toll, and the strain of the life has eliminated some. There is still a little band of the pioneers flying steadily, with no sign of giving up. Among them is George Legagneux.

M. Legagneux has an annoying trick of waiting until somebody else does something very good, and then going and beating it immediately afterwards. He gave way to this habit last Tuesday by beating the height record put up by M. Garros only a few days before, and, in order to make no doubt about the beating, added about 2,200 feet to M. Garros' height, his actual height being 18,635 feet, as compared with the 16,400 feet of the previous record.

Also when M. Legagneux does these things he generally does them in a hurry, so that the whole wonderful performance only took 45 mins—35 mins. up and 10 mins. down. He carried an oxygen tube with him and used it after he had passed 16,000 feet, though he says he could have done without it. He started from Issy at 11.52 and came down at Villacoublay. The first 10,000 feet took 13 mins., but after that the ascent was slower. The variation is interesting. He rose 1,000 metres in 2 min. 30 sec., 2,000 metres in 7 min. 30 sec., 3,000 metres in 12 min. 30 sec., 4,000 metres in 20 min., 5,000 metres in 35 min., and 5,700 metres in 45 min. His descent lasted 10 min. Surely no quicker rate of rising has ever been known in the case of an aeroplane?

It is interesting to note that the new altitude record is something like 4,000 feet higher than Mont Blanc. The machine Legagneux used was a Morane of 50-h.p., and it is reported that M. Morane agreed to pay him one franc per metre for his altitude, so that, as the altitude is 5,680 metres, he gets £236 13s. 4d. for his trouble.

Continental Notes.

Buc becomes daily of greater importance in the world of aviation. M. Louis Blériot, weary of Issy les Moulineaux and its strange aerial disturbances, has bought 200 hectares of land at Haut-Buc, with the intention of forming an aerodrome. He is erecting several large hangars, and intends to train at this place both civil and military pupils.

Mlle. Dutrieu, the aviatrice, while driving in a motor-car near Lapalisse, on September 13th, collided with a donkey-cart driven by a local farmer. She was seriously injured, and is now in hospital at Lapalisse.

M. Perreyon, the Blériot chief pilot, passed both tests for the *brêvet militaire* during the past week. On September 13th he flew from Paris to Larçay, near Tours, and back, and on the following day he made a circuit of Etampes, Verdun, Camp-de-Cercottes, Etampes.

It is announced that two sportsmen, by name Georges and Verminck, intend to take three Gnome-engined Blériot monoplanes to Australia, that the aboriginal mind may be enlightened as to the mystery of human flight. M. Marc Pourpre, who made two rather eccentric cross-Channel flights last year, accompanies them as pilot. On their way out they will give exhibitions in India and Ceylon. In Australia they have no intention of founding aerodromes. The boundless desert will be their circus. Let us hope the sun of fortune will smile more kindly on their enterprise than it did on the previous expeditions.

A British Success in Russia.

A message from St. Petersburg states that a committee of Russian officials appointed to test various aeroplanes for military use has decided that for taking photographs, dropping bombs, and making observations the Kennedy biplane best meets their requirements. This machine, it should be noted, is the one on which Mr. Lewis Turner, now chief pilot of the Grahame-White school, was working last year, and it is built to the designs of Mr. C. J. Mackenzie Kennedy, a Scottish engineer.

Dirigibles—Fortunate and Otherwise.

During the past week or two dirigibles have come very much into prominence. The happenings to the three British dirigibles on their way to manœuvres were duly noted in last week's Aeroplane, and since then the "Gamma" has done some very good work in East Anglia, though, of course, it must be remembered that a small, slow dirigible of her type would be very little use on active service against an army well equipped with fast aeroplanes, or with larger and faster dirigibles of any type. Still, purely as a demonstration of what it is possible for a dirigible to do, her day and night work has been extremely valuable. The little new "Beta" also reached the manœuvres area last week, and performed quite nicely, but on her way home she had engine and transmission troubles which caused much delay.

The "Gamma's" home-coming was not so fortunate, for

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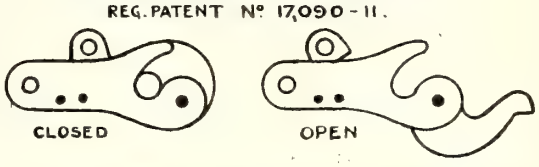
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after passing over Cambridge she eventually found herself blown far to the westward by the strong east wind, and eventually arrived near Devizes, where, in descending, the skids of the landing carriage under the body caught a hayrick and turned the machine over. Fortunately, the crew escaped injury, but the rest of the apparatus will need considerable repairing. The fact that the balloon was driven to Devizes while making for Farnborough shows the absurdity of imagining, as some people seem to do, that so small a dirigible can be of any use except purely as a training ship in calm weather.

Later news of the "Delta" states that she arrived at Farnborough in a deplorable condition after her trip to Finchley and back. At best, this dirigible has a nasty-looking kink in her back, and on this trip her new envelope lost so much gas that she finished with the nose and tail sticking up and the middle sagging down, so that the weight was all being carried by the ends, and there was considerable danger of their blowing out, and letting the whole thing collapse.

Incidentally, it is stated that none of these dirigibles have propeller guards, so that, if a propeller broke, through hitting a loose wire, or for any other reason, there is nothing to prevent the pieces from puncturing the envelope, which would then burst. It seems strange that after more than two years we have not yet learned our lesson from the disaster to the French Army dirigible "République," when a similar accident happened and the crew of four were killed. Immunity from accident breeds carelessness, and people are apt to forget that the longer the time which has elapsed since the last fatal accident the nearer one is to the next, so that long freedom from trouble ought really to induce greater care.

Of course, public attention has been concentrated to a great extent on the voyage of the Zeppelin dirigible "Hansa" from Hamburg to Copenhagen, for the idea of a large German dirigible cruising round a British fleet naturally appeals to the public and journalistic imagination. The "Hansa," with eleven passengers, including Count Zeppelin and a couple of British officers, left Hamburg at 4 a.m., and arrived at Copenhagen, 190 miles distant, in about seven hours. The German Press made considerable capital of the fact that for the first time a German airship has crossed the sea into a foreign country. Several German papers point out that a German airship stationed at Cologne can easily reach the British coast, and the prevalent westerly winds would make its return quite easy. It is just as well to emphasise this fact, as it will draw more attention to our need in this country for adequate aerial defence.

It may, however, be well to point out that the percentage of dirigibles destroyed still remains fairly high. The average of casualties has been maintained by the destruction of the Parsival dirigible which was recently bought by the Japanese Army from its German manufacturers. Apparently, this machine was caught in a typhoon and blown to pieces, together with the temporary shelter erected for it. The machine was quite a modern one and had reached a speed of nearly 40 miles an hour during its trials in Germany.

Guatemala's Aviation School.

An aviation school has been provided for by contract between the Government of Guatemala and M. Luis E. Ferro (said to represent French aeroplanes and supplies). M. Ferro binds himself to maintain a school on a par with those of Europe and America, and to give instruction free of charge to four young men to be designated by the Government. On its part the Government, for five years, grants "free entry of all apparatus and supplies, free use of the Campo de Marte (parade grounds), and furnishes an ambulance corps." The last-named provision seems particularly thoughtful. As the scenery of Guatemala is pleasingly diversified by a number of extremely active volcanoes, hot lakes emitting clouds of sulphur steam, and so forth, cross-country flying in that part of the world should, at any rate, be free from the charge of undue monotony.—M. L. E.

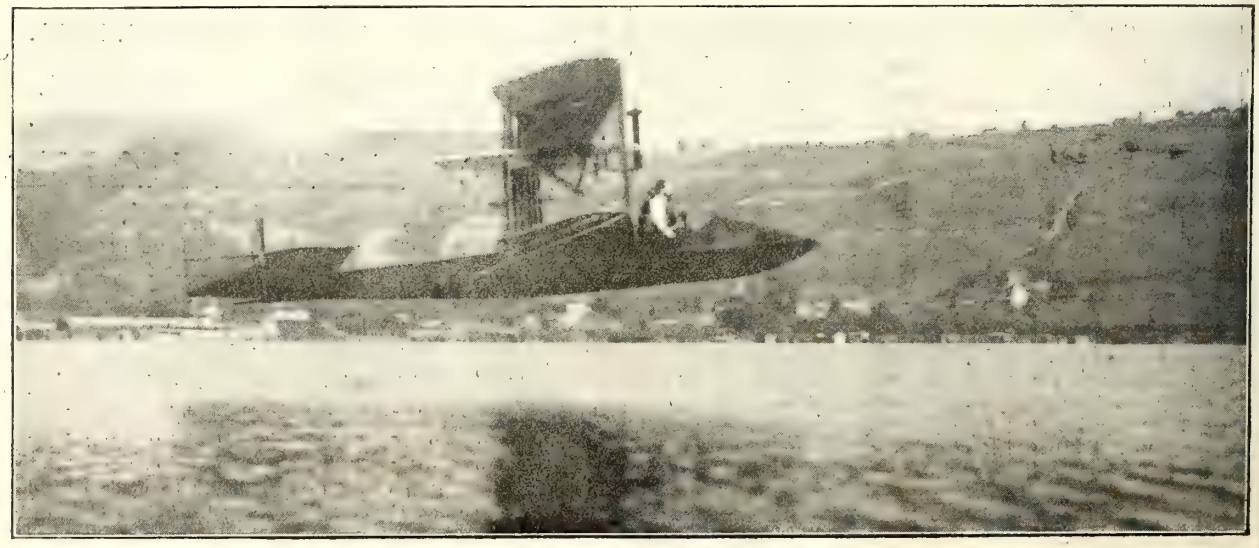
A Question of Uniform.

Mr. Lyulph Lumley writes:—"The fact that the French Government is providing its military flying corps with a uniform which has distinctive features may be an excuse for drawing attention—if that has not already been flagrantly done by our Army aviators themselves—to their costumes. There are some who wear overalls, there are some who don "oilies," and there are others, who, in desperation, perhaps, have adopted the uniform of the L.C.C. tramcar pilots. Knowing, as we know, the effect of the word "headgear" on the War Office, we may hesitate to suggest the designing of a practical, suitable air-service cap or helmet. Even with recent memories before us, it does not seem probable that the military experts in head-covering could possibly do worse. It is surely not on the side of dignity, or utility, that an officer-pilot should be permitted to wear an arrangement consisting, apparently, of a black velvet bonnet attached round the chin by means of a strip of white surgical bandage and completed by a pair of Brighton Road goggles. Yet such a "face-ache" comforter was actually seen during the recent manœuvres and was, moreover, worn above a violent suit of mustard oil-skins.

"It really does seem necessary to consider the most suitable regimentals for our 'Army airmen,' even if this does not entail one more 1,000-guinea prize. And, knowing, as we all do know, the speed of the powers that be in the Army Clothing Department, it appears that unless the work is put in hand soon we may not behold the Service-pattern aviator until the days of the 4.7 helicopter gun."

What Is An Airman?

Boy Scouts receive badges for proficiency in various pursuits. The first on the list of these callings is "Airman." One would like to know what are the particular tests of proficiency in this instance, but it is hardly to be supposed they include the possession of the Royal Aero Club pilot's certificate; and one may, therefore, conclude, with feelings of relief, that an "airman" is not necessarily the same thing as an aviator, after all. I confess I always had my doubts on the subject.—M. L. E.



The latest Curtiss flying-boat flying over the water.

The Week-end at Hendon.

The faithful thousands who went to the London Aerodrome last Saturday expecting nothing, or at any rate very little, because of the strong, cold east wind, were rewarded by seeing some of the finest flying of the season.

The first out was young Desoutter on the old Gordon-Bennett Blériot, now fitted with the harmless, necessary steel plate along the lower planche. As usual, he flew beautifully, though his first few turns at the north-west corner were taken very wide because of the drift of the wind.

Then Mr. Hamel, returned from his newspaper tour, made a welcome re-appearance, and proceeded to do his usual hair-raising turns and dives, causing the crowd much entertainment and considerable emotion. He made four or five flights in the course of the afternoon, handling his Blériot in his usual masterly manner, and, be it said, keeping quite well away from the crowd when doing his tricks—an improvement which was not only appreciated, but which really gave one a better chance of observing his clever work.

A few minutes after he started we had an unexpected treat, for one of the Royal Aircraft Factory biplanes, B.E.4. on which Lieut. Fox, of the Royal Flying Corps, had arrived the previous evening, was brought out so that the pilot could test his engine before going on to Farnborough. The performance gave the British public—or at any rate some thousands of them—a very good idea of the quality of our Service aviators, for, without playing tricks of any kind, Mr. Fox did some very fine flying, his style being distinctly reminiscent of that of M. Moineau on the 100-h.p. Bréguet. It was noticeable, however, that his 70-h.p. Gnome was not quite at its best, as it seemed a little sluggish in picking up whenever he switched off and on, so he wisely postponed his start.

Shortly afterwards, Lieut. Gordon Bell, of the Royal Flying Corps Reserve, brought out another B.E., and started for Farnborough with Lieut. Webb-Bowen as passenger. This machine is practically the same as Mr. Fox's, with staggered planes and a Gnome engine. It rose at a very low speed and lifted very rapidly, but owing to its heavier load did not seem to manœuvre so handily.

An interested spectator of the proceedings was Mr. Glenn Curtiss, the famous American constructor, whom I had not seen since he won the Gordon-Bennett Cup at Reims in 1909. He and his French representative, M. Maréchal, were at Hendon on waterplane business, and kindly gave me the photograph of the latest Curtiss flying boat which is shown in this issue. Mr. Curtiss seemed greatly to admire the B.E.'s. By a peculiar coincidence, Mr. A. V. Roe, the originator of the tractor biplane, was with Mr. Curtiss at the time, and so he was able to tell the story of its evolution.

A number of excellent flights were made by Mr. Lewis Turner on the 80-h.p. Henry Farman. Also, much to everyone's satisfaction, M. Verrier appeared again on a new Maurice Farman, which he handled with all his usual skill, though he explained to me when he came down that the machine was not yet quite "au point." The new machine is exactly like the familiar "aero-'bus," and will doubtless be as popular with those desiring passenger flights.

Towards dusk a fine high flight was made by Mr. Gates on the 80-h.p. Henry Farman. It is now quite Mr. Gates' habit, when he has seen that everything possible has been done for the entertainment of the public, to treat himself to what is vulgarly known as a "joy-ride," and it is quite a pity that his position as manager prevents him from entering for competitions, for his excellent flying would add considerably to their interest. Mr. Hamel was up at the same time as Mr. Gates, and took his Blériot up to about 5,000 feet, coming down nearly frozen.

Mr. Lewis Turner finished the entertainment with a very pretty flight in the dusk, and though no competition flying had been possible owing to the wind, I think everyone was perfectly satisfied that they had had their money's worth, and a bit over. Certainly the flying at Hendon is getting more and more excellent, and more independent of the weather every week.—C. G. G.

On Sunday, September 22nd, owing to a very high wind, flying did not commence until the early evening, when some exceptionally fine exhibition flights were given by various well-known aviators. At one time there were five machines in the air at once.

M. Desoutter was flying the Gordon-Bennett Blériot. Mr. Lewis Turner had the Howard Wright machine out. M. Pierre Verrier flew his new Maurice Farman. Mr. Noel was carrying passengers on the 80-h.p. Henry Farman. And Mr. Sidney Pickles made some fine flights on the Caudron biplane.

During the evening, Lieut. Fox, of the Royal Flying Corps, after a test flight to try his engine, which had been giving him trouble the previous day, left with his observer, Capt. Dawes, on the Army biplane No. 203 for Brooklands. The spectators were greatly impressed by the fine flying of all the aviators, and it is notable that so much should have been done, when no flying took place elsewhere.



AN INTERESTING GROUP AT HENDON.—Left to right: Mr. Glenn Curtiss, the famous American constructor; Mr. A. V. Roe, the British Pioneer; Mr. Richard Gates, the maker of the London Aerodrome; and M. P. Maréchal, Mr. Curtiss' French representative, who was on the "Titanic" when she went down.

The Death of Mr. H. J. D. Astley.

In Henry Jacob Delaval Astley, who was killed at Belfast on Saturday, we have lost one of the most striking personalities connected with aviation in this country. Not only was he a flier of the very first class, but he was one of the very few men who took to flying purely as a sport. To those who did not know him he appeared as the typical modern young man who takes no particular interest in anything, and lazes through life as easily as possible. Actually, he was full of energy, when he found anything interesting on which to expend it. He was wonderfully strong for his slight build, and possessed unusual stamina, which pulled him through long periods of effort which would have worn out most men, his natural wiriness being aided by that quality of will power which keeps the real thorough-bred going till it drops. Added to his physical ability, "Otto" Astley, as his closer friends called him, possessed an unusually active mind, stored with an astonishing amount of out-of-the-way literature, and he had the keenest possible sense of humour, which made him welcome wherever he went.

As a sportsman, he first became known as one of the little group of gentlemen drivers who made Brooklands so entertaining in its early days when pure sport without trade interest gave us some of the finest racing ever seen, between the really big cars of the period. To see Astley taking his Grand Prix Napier round at anything from 100 to 110 miles an hour within a foot or two of the top of the banking gave one some idea of what perfect eye and hands can do.

In 1909, after being at the great Reims meeting, Astley built a small monoplane on Antoinette lines, but it never flew. Thereafter he tried a monoplane built by Charles Lane, which flew a little, but he really learned his flying on the old Sommer biplane belonging to the Universal Aviation Company, Ltd., in which he had an interest. In the "Circuit of Britain" he flew a Blériot-type monoplane built by the same firm, and put up a very fine performance, making as good time as the leaders till stopped by engine troubles. His real ability as a flier was shown at the start of that race, for he was by far the steadiest of all the competitors in getting through the appalling gusts and eddies that made flying so dangerous on that memorable day. After retiring from the race he flew back to Brooklands, making in all over twenty landings between the start and his return without the slightest damage to anything.

This year he did no flying for some time, but early in the summer he flew a R.E.P. in France, and was at once recognised as being of more than ordinary ability, so he was engaged to fly one of these machines in the "Circuit d'Anjou." It was one of his great sorrows that M. Esnault-Pelterie refused to allow him to fly in the race because of his agreement with other makers that none of their pilots should start in such weather.

Shortly afterwards he did some good flying at Hendon on the old Gordon-Bennett Blériot, and quite recently he arranged with Miss Trehawke-Davies to fly her tandem Blériot for her. His flight to Paris on this machine and his plucky attempt on the Pommery Cup are matters of yesterday only, as is his fight with the gale in the race from Dublin to Belfast. All these flights show that we have lost one of the best pilots this country has produced.

In the course of his brief but notable career, Astley had numerous hairbreadth escapes from death. His adventure when his monoplane dived from under him at Brooklands and left him sitting on the fuselage is now a classic example of luck and judgment combined. Not less wonderful was his escape when he hit the top of a twelve-foot wall at Pwllheli and landed on the other side in the wreck of the fuselage, without chassis or wings. And only last week his landing on one wing from 100 feet, with Miss Davies in the tandem Blériot, after his controls had broken away, was another example of luck and skill. He seemed to bear a charmed life, for any of these smashes was enough to have killed him. It seems the irony of fate that he should have met his death doing a simple exhibition flight before a Belfast crowd on a comparatively fine day.

The machine he was using was the 70-h.p. tandem Blériot on which Mr. Sopwith won so many prizes in America last year, and on which he won the "Aerial Derby" and several minor races a few months ago. Mr. Astley bought it for exhibition purposes, and flew it at Caerphilly, at Dublin, and at Belfast.

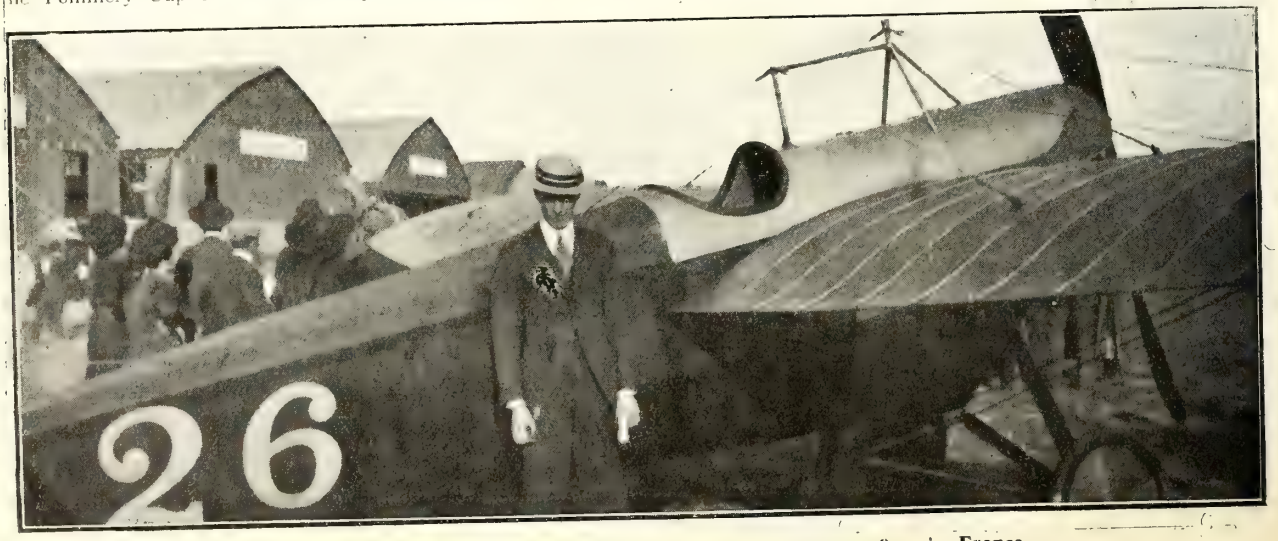
Astley was only twenty-four years old. He was the son of the late Bertram Frankland-Russell-Astley. His mother now the wife of Major the Hon. Claud Heathcote-Drummond-Willoughby, was, before her marriage to his father, Lady Florence Conyngham, and through both his parents he was related to a number of the noble families of Great Britain.

He leaves a young widow, an American lady, who was formerly Miss May Kinder. To her and to his mother one can only offer one's heartfelt sympathy in their great trial, and assure them that many of us have lost by his death a very dear friend.

The Accident.

The cause of Astley's death seems quite simple. Apparently he was travelling down wind in a small oval ground, and was turning sharply to avoid going outside the aerodrome, for it was his expressed wish to give as good a show as possible to those inside the ground, as a number of well-to-do people with cars were standing outside, although the performance was being given for charity. In doing a sharp turn at the point of the ground the machine side-slipped and threatened to fall on the crowd, so to save them Astley increased the rapidity of the turn and banked still more, without, however, getting any better grip on the air. He succeeded in clearing the crowd, and came down on his left wing, with the right wing actually overhanging the palings. The machine was fairly badly smashed, but nothing like so badly as other machines on which he has had accidents, and his death was due undoubtedly to his being thrown against the upper pylon—the two large steel tubes to which the upper wing wires and warping gear are attached.

There seems scarcely any doubt that if he had been wearing



The late Mr. H. J. D. Astley beside the R.E.P. machine which he flew in France.

a belt and helmet he would have escaped with nothing worse than a shaking, and either alone might have saved his life. The actual drop only came from a matter of 30 ft. or 40 ft., and the crushing of the left wing must have deadened the force considerably.

He was alive, but unconscious, when picked up, and was taken to the nearest hospital, where an operation was attempted to relieve the pressure of the broken bones on the brain, but the damage was too great, and he passed away under the operation.

Astley was born in London on March 3rd, 1888, and took his pilot's certificate on a Sommer biplane at Brooklands on December 31st, 1910, his certificate being No. 48. He gave his life to save others.

Mr. Astley's Last Big Flight.

[The following account of Mr. Astley's last big flight was written from an account given by him two days before his death.—Ed.]

Miss Trehawke-Davies and Mr. Astley continued their series of weird adventures last week, when they started to fly from Liège, with the intention of bringing the machine back to London, having made up their minds that they were not going to let it travel except in its proper element.

Unfortunately, the fates were against them, for on approaching Lille they started to land, and after planing down from 3,000 feet to 150 feet the control went wrong, and the machine came down in a heap. So far as can be gathered from the wreckage, the wood to which the control lever is fixed had become so soaked with oil that a knot in the wood gave way, and the floor-boards broke up, jambing the lever, which then broke its gimbals away from their fixing, so that neither the warp nor elevator could be used. Thus Mr. Astley was left with nothing but the rudder working.

The machine heeled over to her left side, and then by use of the rudder he brought her over to the right, but could not, of course, flatten out to land. However, the machine more or less kept on flying till she finally came down on the right wing, which crumpled up so gently that the crew found themselves seated amid the wreck unhurt, and only a trifle dazed.

Miss Davies, who was, as usual, keeping a log of the flight, actually entered in her book as the machine was coming down, the interesting detail that something had gone wrong with the controls, winding up with the words, "splinters flying." This is about the finest example of aerial nerve yet displayed by anyone, its only parallel being that of Lieut. Ludmann's mechanic, who wrote a note to the effect that a screw was working loose on the engine of the Bréguet in which they were flying, and that if they came to a violent end it should be recorded that the accident was not the fault of either the pilot or the machine.

Mr. Astley says that when he first looked round after the smash Miss Davies was entering further details of the accident in her note-book, and that the first remark she made when they crawled out of the wreck was: "We shall have to go by train, after all." The calm little lady thereupon proceeded to disentangle her camera from the débris, and take a photograph of the remains. When people from Lille arrived to pick up the corpses they found them both sitting eating biscuits (also salvage from the wreck), and waiting for someone to turn up.

Mr. Astley suggests that in future machines the control gear should in all cases be fixed to steel cross members, so that there is no possibility of its actual fixing coming away. Then, if a floor-board jambs, the lever will have a sufficiently solid fulcrum on which to work and clear away the obstruction.

Mr. Cody's Proposed Tour.

In the course of a visit which he paid The Aeroplane recently, Mr. Cody explained his intentions regarding the series of lectures he wishes to give in various towns in Great Britain. As has been announced in various papers, his idea is that a well-endowed fund should be established in order to provide for the widows and orphans of aviators, either military or civilian, who may be killed in the course of their work.

The object is an entirely praiseworthy one, and the idea comes better from Mr. Cody than from anyone else, for, as he pointed out, he is now in a position which will ensure that if he himself comes to a sudden end (which Heaven forfend) there will be no necessity for his widow and orphans to claim on the fund. It is obvious, therefore, that he is not out for his own benefit in any way, and, as he puts it himself, having secured his own position he is now deliberately going begging for those who have not been so fortunate in their work for the progress of aviation.

Mr. Cody's idea is to give ten lectures in ten of the leading cities of this country, and the writer was interested to see a letter Mr. Cody had just received from Mr. Alan Jenkins, the secretary of the Bristol and West of England Aero Club, who, immediately on seeing the preliminary announcement in the papers, wrote to Mr. Cody and asked him to make sure of including Bristol in his tour. Mr. Cody intends to give his services wholly to the proposed fund, merely taking his actual out-of-pocket expenses, and he hopes to get substantial backing for the scheme in the first place, both to form a nucleus for the fund, and to ensure that not even the expenses of the tour will come out of the sums acquired during the tour.

His idea of a suitable subject for the lectures themselves is a discourse on what this country ought to do in order to be first in aerial defence. With his knowledge of aviation from its earliest days to the present moment, and with his sound ideas as to future developments, Mr. Cody ought to be well worth hearing.

The Proposed Bath Meeting.

Mr. G. F. Rawlings, who is organising an aviation meeting which it is hoped may be held at Bath in October, writes that the circular recently sent out does not imply a wish that manufacturers should subscribe to the prize fund, but was solely an inquiry as to whether in the event of the necessary prize money being raised locally manufacturers and their pilots would support the meeting by entry. Bath is quite a good sporting centre, and a number of people would naturally attend the meeting from Bristol and other thickly-populated districts in the vicinity, so that a large sum in "gate-money" would be practically assured, and, given good weather, the meeting should be a distinct success.

A Feminine Aero Club.

Mlle. W. de Palmer, of 508, Lordship Lane, Dulwich, S.E., writes that she wishes to form a model flying club exclusively for ladies, and would be glad to hear from any of her sex in the south-eastern district who would join her in establishing such a club.



The new temporary club-house and lawns of the Brighton-Shoreham Aero Club.

The Week's Work.

MONDAY, September 16th.

Central Flying School.—Capt. Fulton on Avro 404 with Air Mechanic Higginbottom, for tuition, and later with Major Gerrard one flight, and Lieut. Hartree. Lieut. Hartree once alone. Capt. Fulton also on Short 402 two solos. Lieut. Shepherd three times alone, and Capt. Risk twice on same machine and later each two more flights. Lieut. Courtney three times on Short 401 and Major Gerrard with Air Mechanic Dismore twice, and Air Mechanic Copper once in morning, and later one flight each with Capt. Cordner, Sergt. Jukes and Air Mechanic Barker.

Hendon.—Grahame-White School out at 6 a.m. under Mr. Lewis Turner. Capt. Kunhardt, Lieuts. Allen and Small, and Messrs. Wilson and Marrick doing straights on Sommer biplane. Mr. Hoelscher circuits on same machine. Mr. Roupell circuits on 35-h.p. Blériot, and Major Madocks passenger flights with instructor. In evening, Mrs. Stocks out on 25-h.p. Blériot. Mr. Toni Bayetto rolling on same machine. Major Liles and Lieut. Allen and Messrs. Fuller and Wilson straights on No. 7 biplane.

At W. H. Ewen School pupils out 5.30 a.m., and almost continuous day's work put in. Under instruction of M. Baumann Lieuts. Bayly and McMullen making progress on No. 1 monoplane, doing straights at 25 feet with good landings. Mr. L. Russell on same machine rolling. Capt. Chamier and Mr. H. James on monoplane No. 2 were flying straights and half circuits in fine style and landing nicely. At 9 a.m. Mr. Sydney Pickles brought out 35-h.p. Caudron biplane and after short test flight handed machine over to Messrs. Apcar and J. H. James, who thereafter had three and a half hours' continuous practice. After each having eight flights, Mr. Sydney Pickles made short flights and finding everything satisfactory, Messrs. Apcar and J. H. James continued practice and made another eight flights. At 4 p.m. all pupils out again, when M. Baumann had Lieuts. Bayly and McMullen making nice flights and Messrs. Lawford and L. Russell hopping. Capt. Chamier and Messrs. H. James, Warren and Gist each making several flights on monoplane 2. At 5 p.m. Mr. Sydney Pickles was again out on 35-h.p. Caudron and rising to 1,000 feet made a beautiful glide down Collingdale Avenue. He immediately went up again, taking a sealed barograph, and in 30 mins. reached 3,500 feet, passing over Cricklewood and surrounding country, and being lost in mist for fully ten minutes. Returning to Aerodrome he did a beautiful spiral glide making three complete circuits, in third of which at 150 feet his propeller become stationary. Mr. D. Edmund then flew several circuits on same machine.

At Blackburn School, Messrs. Spink, Buss and Dr. Christie doing rolling practice in morning for first time. Again practising from five to seven in afternoon. Dr. Christie caused some excitement on his last journey. Failing to switch off the engine, he came back with too much speed, rose into the air, and ran right into the hangar. The doors were fortunately open, and, therefore, only slight damage was done to one of the wing tips striking the side.

At Bleriot School, pupils practising in occasional lulls in the wind. Messrs. Gandillon, Reilly, Teulade, Sacchi and Clappen all putting in good spells of work on L.B.1 and L.B.2.

Brooklands.—At Sopwith School, in afternoon, Mr. Copland-Perry out testing before handing machine over to Lieut. Marks, who then flew some very good circuits in gusty wind. Later Mr. Perry just started off on school Farman when a wheel broke loose, hitting propeller and smashing it to bits; fortunately no further damage was done.

At Hanriot's, Messrs. Sippe and Sabelli, many flights on 50-h.p. single-seater.

At Bristol School, Mr. Bendall testing, then with Capts. Reed and Gibbon. Mr. Merriam testing, then Lieut. Stopford for brevet, which he took splendidly with fine landings. Capt. MacDonell, Lieuts. Penn-Gaskell and Glanville doing figures of 8. Mr. "Darracq" and Lieut. Hanlan circuits. Mr. Merriam behind Capts. Reed and Gibbon and Mr. Hall. In evening, Mr. Merriam and Mr. Bendall alone, then latter up with Capts. Reed and Gibbon. Capt. MacDonell, Lieuts. Glanville, Penn-Gaskell, Mr. "Darracq," Lieut. Hanlan and Mr. Payze alone. Mr. Merriam behind Mr. Hall and Capts. Reed and Gibbon.

Lark Hill.—Bristol School: Messrs. Pizey and Harrison giving tuition to Messrs. Lucina, Lywood, Penfold and Parker. Mr. Busteed out on side-by-side monoplane with Prince Cantacuzène, Lieut. Hall, and Mr. England as passengers.

Eastchurch.—Lieut. Parke, R.N., on Short monoplane. Lieut. Hewlett, R.N., on Short biplane 38 with Lieut. Berne, R.N., as passenger, and afterwards with Gunner Bobbet, making several circuits of the island.

Waterloo (Liverpool).—Mr. Melly out for short flight on two-seater doing figures of eight. Afterwards took out "Y" engined machine, did a figure eight, and then handed machine over to Mr. Birch. Latter gave fine exhibition of machine doing figures of eight and planing down with engine switched off from 150 or 200 ft.

Windermere.—"Water Hen" flying more or less all day. First with Lieut. Trotter doing good straights and fair turns. In afternoon Mr. Stanley Adams out with passengers. Also Lieut. Trotter getting more at home. And in evening Lieut. Trotter doing good circuits as long as light lasted.

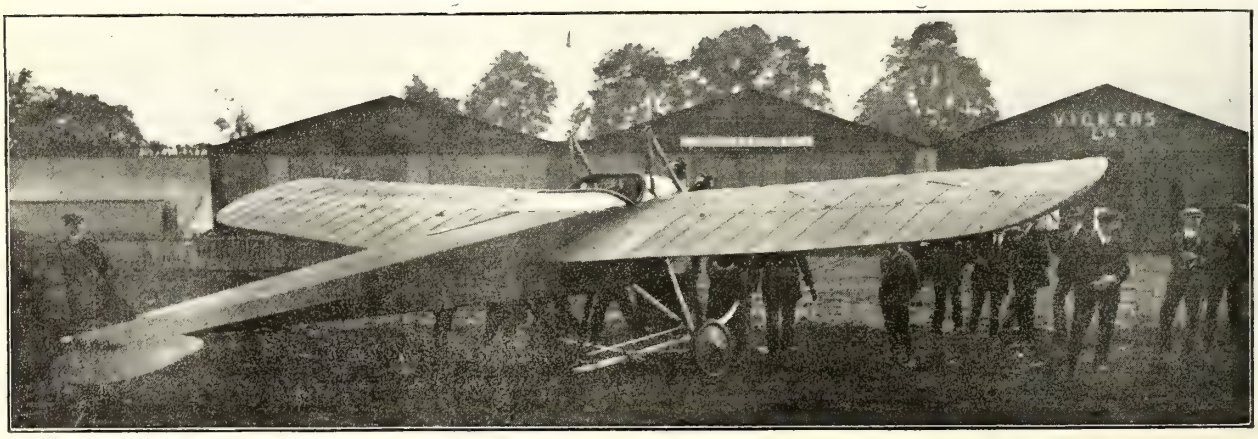
TUESDAY, September 17th.

Central Flying School.—Capt. Fulton on Avro 406, and Capt. Risk on Short 402.

Hendon.—Grahame-White School out at 3 p.m. Capt. Kunhardt and Lieut. Allen and Messrs. Fuller and Wilson straights on No. 7 biplane. Messrs. Hoelscher and Wynne circuits on same machine.

At W. H. Ewen School, pupils out at 6 a.m., when Capt. Chamier, Lieuts. Bayly and McMullen and Mr. Lawford put in excellent practice on monoplanes 1 and 2 before wind rose. In evening School again out. Messrs Lawford and Gist straights on No. 1 monoplane and Capt. Chamier and Messrs. H. James and W. Warren good straights and half circuits in monoplane No. 2. Mr. Sydney Pickles out on 35-h.p. Caudron giving nice exhibition, after which he took up Mr. J. H. James as passenger on same machine and surprised everyone by flying several circuits comfortably at 200 feet.

At Bleriot School, Messrs. Teulade, Sacchi, Clappen, Reilly and Gandillon all working well.



The "No. 6" Vickers, which is flying so well with a Viale engine.

Brooklands.—At Vickers School, Capt. Wood out on No. 5 testing English engine, which has just been fitted to that machine, and giving most satisfactory results. Mr. Knight and Mr. Barnwell also out for circuits on No. 5, both flying extremely well. Mr. Geere putting in some very good straight lines and curves.

At Sopwith School, in afternoon, Mr. Perry out on Farman testing, followed by Lieut. Marks for half an hour, who gave most excellent exhibition.

At Bristol School, Mr. Merriam testing. Mr. Bendall took up Capt. Reed. Mr. Merriam behind Capts. Gibbon and Reed. Capt. MacDonell, Lieuts. Glanville, Penn-Gaskell, and Hanlan and Mr. Payze alone. In evening, Mr. Bendall with Capts. Reed and Gibbon. Mr. Merriam testing. Capt. MacDonell, Lieuts. Penn-Gaskell, Glanville, and Hanlan, Mr. "Darracq," and Mr. Payze alone.

Lark Hill.—Bristol School: Mr. Harrison testing. Mr. Busteed out later for another trial. Mr. Pizey later with Mr. Parker. Mr. Harrison giving tuition to Messrs. Lucina, Lywood and Parker. Mr. Pizey made good flight on side-by-side monoplane, afterwards taking passengers. Mr. Busteed testing new monoplane. Mr. Harrison a couple of circuits on a biplane with passenger.

Eastchurch.—Lieut. Parke, R.N., again on Short monoplane, flying well. Lieut. Hewlett, R.N., with Lieuts. Berne and Courtney, R.N., as passengers in turn.

Windermere.—Lieut Trotter practising in afternoon and Mr. Stanley Adams taking passengers in the evening; in both cases with "Water Hen."

WEDNESDAY, September 18th.

Hendon.—At Grahame-White School, Mr. Fowler straight flights on 25-h.p. Blériot in spite of wind.

At W. H. Ewen School, pupils out at 7 a.m. As soon as mist lifted Mr. Sydney Pickles made test flight on 35-h.p. Caudron taking Mr. Apcar as passenger. Machine then handed over to Mr. Apcar who after two good straights made first circuit of aerodrome at 100 feet, landing nicely. Mr. Edmund then made two flights in Caudron, doing splendid figures of eight. Mr. J. H. James then out on same, flying nice circuits. M. Baumann busy with pupils on monoplanes 1 and 2, and Capt. Chamier, Lieut. Eric Conran and Mr. H. James making nice flights. In evening stiff breeze blowing but Mr. Sydney Pickles put up splendid flight on little 35-h.p. Caudron.

At Blackburn School, early, Messrs. Buss and Glew out rolling.

At Bleriot School, Messrs. Reilly and Gratien out early on L.B.1 and making good progress.

Brooklands.—At Vickers School, in morning, Mr. Macdonald out on No. 6 testing some new wings. In evening, Mr. Knight on No. 5 testing air, afterwards Mr. Barnwell and Mr. Geere for good circuits.

Mr. Raynham arrived from Farnborough on Flanders monoplane, flying very strongly.

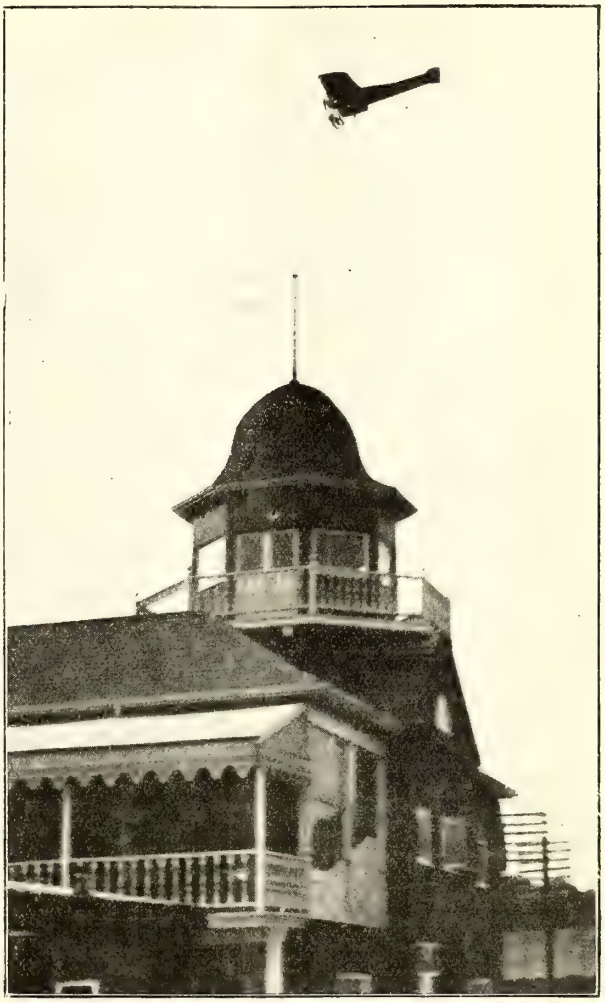
At Sopwith School, in afternoon, Mr. Perry on school Farman, followed by Lieut. Marks for 20 mins. Later, Mr. Sopwith on same machine, lifting three passengers with ease. In afternoon new Sopwith biplane made its debut, putting up a fine show with passenger and pilot and getting off ground quicker than any box-kite, although it has only a 50-h.p. engine. The remarkable thing is that the machine flew two circuits with two on board the very first time it left the ground.

At Bristol School, Mr. Merriam out testing. Mr. Bendall with Capt. Reed. Capt. MacDonell, Lieuts. Glanville, Penn-Gaskell and Hanlan, Mr. "Darracq," and Mr. Payze all flying alone.

Lark Hill.—Bristol School: Trial by M. Jullerot. Mr. Pizey with Prince Cantacuzène on monoplane, getting lost in the fog and landing other side of Fargo. Mr. Harrison tuition to "Capt." Penfold. M. Jullerot with passengers. Mr. Busteed testing new monoplane.

Eastchurch.—Lieut. Hewlett, R.N., with Lieut. Berne, R.N., as passenger, started for Chatham on Short biplane 38, but was obliged to descend at Burntwick Island through engine trouble, apparently caused by carburettor pipe freezing up. After a short stop they returned to the aerodrome. Lieut. Parke, R.N., on Short monoplane, flying in usual fine style. Lieut. Hewlett, R.N., out in afternoon with Lieuts. Berne and Courtney, R.N., as passengers in turn.

Windermere.—Lieut. Trotter taking long flights, sometimes 200 to 300 feet up, and doing figures of eight. Later



Mr. Sabelli on the Hanriot over the paddock at Brooklands.

propeller flew to pieces, and the subsequent forced alighting was not all that might have been desired.

Waterloo (Liverpool).—Messrs. Melly, Birch and Hardman in turns doing figures of 8 all morning. In afternoon more wind, but all three again out figuring.

THURSDAY, September 19th.

Hendon.—At W. H. Ewen School pupils unable to get in any flying practice owing to wind. Mr. Sydney Pickles out in evening giving nice exhibition on 35-h.p. Caudron.

At Bleriot School, Mr. J. Lawrence Hall, an old pupil of the school, was out flying his 50-h.p. Gnome Blériot in about 25 m.p.h. wind with very good control, as engine at times was not pulling well.

Brooklands.—At Vickers School, in morning, Mr. Knight first out on No. 5, handling machine very cleverly in nasty wind.

At Sopwith School, in evening, Mr. Sopwith on Sopwith tractor, was the only one out in a gusty wind, appearing to be unmoved.

At Bristol School, 5.30 a.m., Mr. Merriam testing. Then behind Capt. Reed. Mr. Bendall alone. Lieut. Hanlan two straights, but weather too bad for school.

Eastchurch.—Lieut. Parke, R.N., on Short monoplane. Lieut. Hewlett, R.N., with Lieut. Berne, R.N., as passenger, out on Short biplane 38.

Waterloo (Liverpool).—Mr. Higginbotham arrived to observe Messrs. Hardman and birch for their brevets, but wind too strong and puffy. Both pupils did short flights, but weather unsuitable for brevet flying.

FRIDAY, September 20th.

Hendon.—Grahame-White pupils out at 6 p.m. under Mr. Blackburn. Capt. Halahan, Lieut. Allen and Mr. Wilson

doing straight flights on No. 7 biplane, and Mr. Clark (new pupil) having passenger flights.

Brooklands.—At Sopwith School, Mr. Hedley out first in morning on school Farman, but found wind not good enough for pupils' work. In evening Sopwith tractor flying strongly with two passengers.

At Vickers School, in evening, Messrs. Knight, Barnwell and Geere out on No. 5.

Lark Hill.—Bristol School: Mr. Pizey testing. In evening "Capt." Penfold with Mr. Pizey. Mr. Harrison also testing. Messrs. Busteed and Pizey on tandem monoplane.

Eastchurch.—About 7 a.m., Capt. Gordon, R.M.L.I., on T.5, Lieut. Spencer Grey, R.N., on 70-h.p. Deperdussin monoplane, and Lieut. L'Estrange Malone on 100-h.p. Short triple tractor, arrived back from the manœuvres, all having had good journeys. The Short machines have distinguished themselves highly in East Anglia.

Lieut. Parke, R.N., on Short monoplane as usual. Lieut. Gregory, R.N., out on Short biplane 38.

Waterloo (Liverpool).—Mr. Melly did short flight.

Windermere.—Lieut. Trotter on "Water Hen" doing good figures of eight when the propeller broke. A heavy alighting followed, damaging float and badly buckling all underframe. If it had been on land would have been serious.

SATURDAY, September 21st.

Hendon.—At Grahame-White School, Capt. Kunhardt, Lieut. Allen and Messrs. Wilson and Fuller doing straight flights on No. 7 biplane. Major Madocks and Mr. Clark passenger flights. Mr. Fowler on 25-h.p. Blériot.

At W. H. Ewen School, pupils out at 5.30 a.m. taking full advantage of beautiful morning. Lieut. Eric Conran made splendid progress on monoplane No. 1, flying straights at 30 feet and landing well. Mr. L. Russell hopping. Capt. Chamier and Messrs. H. Gist and H. James on No. 2 monoplane making nice straights and half circuits and showing considerable improvement in landings. Mr. Sydney Pickles after short test handed 35-h.p. Caudron over to Mr. Apcar, who did six good straights. Mr. J. H. James then made excellent flight of three circuits at 150 feet, finishing with nice landing. Mr. Sydney Pickles thereafter took up Messrs. Gist, Apcar and J. H. James for air instruction, then giving extended passenger flight to Mr. S. Freshney. Rising to over 300 feet, he circled the surrounding country and finished with a half-circle glide.

At Blackburn School, Messrs. Buss, Spink and Glew rolling.

At Bleriot School, Messrs. Teulade, Gratien, Reilly and Clappen practising.

Fine flying in afternoon.—See special report.

Brooklands.—At Sopwith School, in early morning, Mr. Hedley first out on Farman and afterwards giving instruction to Major Cameron and Capt. Salmon (new pupil).

At Vickers School, Mr. Knight out on school Farman, giving instruction to Capt. Stott.



KEEN CRITICS.—Mr. Warren Merriam and Mr. Bendall, the well-known Brooklands pilots, watching Mr. Raynham.



Mr. S. Summerfield, who recently took his certificate (No. 292) on a biplane at Brooklands.

In evening, Mr. Gordon Bell arrived from Thetford, near Norwich, on B.E.4, with Capt. Webb-Bowen as passenger. He was on his way to Farnborough and landed at Brooklands for tea. A high wind was blowing which spoke more than well for pilot and machine. On leaving, Mr. Bell reached a height of 1,500 ft. in one circuit of the aerodrome and arrived at Farnborough, 14 miles, in 8 mins.

At Bristol School, 5.30 a.m., Mr. Merriam testing, then behind Capts. Reed and Gibbon. Mr. Bendall with same pupils. Mr. Merriam testing single-seater. Lieut. Glanville then for his brevet, making excellent flight and good landing. Lieut. Penn-Gaskell afterwards took half his "ticket," equally as well, but stopped owing to cold. Capts. MacDonell and Miller, Lieut. Hanlan, and Mr. Payze alone.

Lark Hill.—Bristol School: Instructors out with pupils, but none of latter attempted to fly alone.

Eastchurch.—Mr. Alec Ogilvie took N.E.C. engined Wright to Leysdown for "hydro" work, but a heavy sea and strong wind got up and prevented further work. The machine suffered a few broken ribs in lower plane, caused by heavy waves.

The new twin 70-h.p. engine Short monoplane made its appearance but did not essay a flight on account of heavy wind. The two 70-h.p. engines are fore and aft of the pilot and passenger, who sit side by side. The lateral control is by means of ailerons. She has been built for water work only.

Windermere.—Mr. Stanley Adams out with "Sea Bird" and passenger.

SUNDAY, September 22nd.

Hendon.—At Grahame-White School, Lieut. Small and Mr. Wilson straights on No. 7 biplane. Mr. Wynne doing circuits on same machine. Major Madocks rolling. In evening there was some remarkable exhibition flying, in spite of high wind.

At W. H. Ewen School, pupils out at 6.30 a.m., but wind too strong for practice. Mr. Sydney Pickles, however, gave passenger flights to Messrs. J. H. James, H. James and others, including Mr. Keith-Davis.

At Blackburn School, Messrs. Buss, Spink and Glew all practising.

Brooklands.—At Hanriot's, early, Mr. Sippe and Mr. Sabelli in turn out on single-seater giving exhibition of banked turns. Mr. Ducrocq out on racing Farman, the new Rossel-Peugeot engine appearing to give great satisfaction. Mr. Alcock also out doing straights.

At Sopwith School, in early morning, Mr. Hedley out for two hours, with Capt. Salmon and Major Cameron.

At Vickers School, early, Mr. Knight testing No. 5, afterwards Mr. Geere went for his brevet at about 250 ft.

At Bristol School, 6 a.m., Mr. Bendall and Mr. Merriam testing. Afterwards Lieut. Penn-Gaskell finished other half of brevet exceedingly well. Lieuts. Hanlan and Hope, and Capt. MacDonell alone. Mr. Merriam with Lieut. Loultcheff.

No flying in afternoon or evening owing to high wind.

A Soldier's View of the Manœuvres.

The following letter, which appeared in the "Morning Post" on Tuesday last, deserves to be studied by everyone connected with aviation in this country:—

Sir,—The rapid climax of the recent Army Manœuvres has led to a general assumption in the Press that the credit, or blame, for an unexpected termination is to be ascribed entirely to the work of the aeroplanes. Many of the chief military authorities have expressed the same opinion. As one who took a humble part in the operations in Norfolk and Cambridgeshire I would deprecate hasty conclusions being arrived at without full and dispassionate consideration of the aero-tactical conditions in which the Red and Blue flying scouts were operating. It is already becoming an accepted fact that the fog of war has been for ever dispelled, and that in future campaigns the opposing commanders will be placed in instantaneous possession of the news of every strategical or tactical move on the part of their adversary. Are such conclusions correct, and is it so certain that the coming of the aeroplane has for ever dissipated the fog of war into fleeting shreds as the morning mist is torn by the power of the sun? Probably no Army Manœuvres have suffered so greatly from unreality as was the case during the operations of the 17th and 18th of September. And though our experience of aeroplane warfare is nil, and the science of military aviation is in its infancy, it can be stated with conviction that in no department of the recent operations did so much unreality exist as in the working of the air patrols.

What would be thought of serious military operations conducted under a system by which the earth scouts of both sides, horse and foot, were immune from any opposition or restraint either from opposing patrols or from the formed bodies of their enemy? Yet such were the conditions under which the Red and Blue Armies' aircraft were allowed to work.

The hostile fliers passed one another in their journeys to and fro with the same unconcern and unobstructed flight as may be observed on any summer's day among bees in their quest for honey between the hive and a distant clover field.

The fact that a whole division succeeded in concealing its existence by taking refuge in woods and disguising its vehicles by somewhat puerile devices reflects rather on the powers of observation of the passing aeroplanist than as an augury of success for such methods in the future. Is it to be expected for a moment that in real warfare our aircraft will be permitted to work in such conditions of immunity?

At present the question of the power of the rifle and of the field-gun against a swift flying aeroplane is quite undecided. During last week most of the aerial scouting was performed at such moderate heights that the observing officers could, at any rate, have been well within range of both weapons on most occasions. Only on Thursday did I notice a hostile biplane scouting at any considerable elevation. This was in the neighbourhood of Castle Camps, about ten o'clock in the morning, and during a good part of its flight it was concealed by clouds, and its course could be followed only by the sound of its engines. It is probable that, although it passed over certainly an infantry brigade and a brigade of artillery while halted on a road, both may have escaped its notice. The log-book record would be of great interest on this point. But, for purposes of argument, let us assume that it will be proved ultimately that aircraft have nothing to fear from either rifle or gun fire, even while scouting at such moderate heights as will enable them to keep below the clouds and to note every body of troops over or near which they may pass in their flight. Even so, will they be able to operate in happy security in close contact with a Continental aerial fleet? I trow not.

We are already being regaled by the Press with fanciful and prophetic visions of armoured air-vessels carrying rapid-firing guns and other horrid engines of war; with forecasts of engagements in which whole columns are to be annihilated by the torpedoes dropped from such miniature warships hovering above them; with dreams of air strategy and tactics drawn from the bluest of the blue-water school. If we are to dream of futurity let us, at least, dream soberly. Why go to the element of water to draw our inferences of the future tactics of the air? Let me dream for a moment, and recall a memory of a broad-winged heron planing steadily homewards with a supply of fish for her nestlings. In the distance a hovering speck appeared, a peregrine falcon quartering the whole extent of a county in an hour's rapid flight. The heron, alarmed at the approach of so apparently insignificant a foe, hastily disgorged her cargo and planed ever upwards in a wide spiral flight. But high as she might rise, the falcon soared ever higher until he was poised at an immense elevation immediately over his destined prey. The keenest eyesight was required to follow the phases of the ensuing battle in the air. Dropping like a stone in a lightning attack on the still flying heron, the falcon found at the last moment that she had thrown her head back on to her shoulders, and that if he drove his stoop home he would find himself impaled on her rapier-like beak. With a rapid side-slip, which the eye could scarcely follow, he had steered clear, and the impetus of his stoop had carried him far below the other bird, who immediately resumed her flight for home and safety. But in a few moments he had once more regained the requisite height from which to resume the attack; and ultimately the small but infinitely more active falcon slew his huge adversary.

Here, to my mind, we can find a sounder forecast of the tactics of opposing aircraft than from dreams of naval engagements. Once again the race will be to the swift—to the aviator who can manœuvre with the greatest skill and rapidity for the weather-gauge of elevation. He will not, indeed, drop personally, as the falcon, on to the less handy victim planing beneath him, but the deadly bomb will play the part of the falcon's savage talons, and the result will be no less conclusive.

If this theory be correct we may wipe out visions of miniature warships equipped with heavy crews and still more weighty weapons, lumbering like the heron at a height whence the crawling worms of a marching army can be threatened, and substitute a prophecy of a more falcon-like architecture for the war-vessel of the air, to which the power of swift ascent will be the vital factor in self-preservation, and whose armament must necessarily consist only of the lightest form of bombs.

An evident corollary must be a normal course in the air at the greatest elevation consistent with any power of observation of the things on the earth's surface, and an immediate manœuvring for the upper air at any threat of attack by a hostile aircraft. There will be no such passing-by of opposing aviators like bees in their day's work, as was the case during the 1912 manœuvres. With such conditions as these, would the scouting of the aeroplanes have been so accurate and successful as that which has earned the pæans of somewhat unthinking praise which have been lavished? Would the fog of war have been so completely dispelled? Is the fog of war so entirely a thing of the past? Let us not rush to hasty conclusions—but let us devote our most strenuous efforts of clear thinking to an attempt to forecast the realities of the situation which the coming of the airship has introduced into the area of military operations.

If we do this, I think the unpleasant conviction will be forced upon us that the numbers of our existing air fleet are totally insufficient, even if every unit is possessed of the most perfect soaring qualities of the falcon.—Yours, etc.,

September 23. A Mud-Crusher.

The Caudron Again.

Wonderful as was the performance of Mr. Pickles and the little 35-h.p. Caudron on Saturday, the 14th, when he took the machine up to 2,850 feet, it was totally eclipsed only the following Monday when, owing presumably to the atmosphere being better and the engine pulling more strongly in consequence, he again took the machine to about seven hundred feet higher. In describing the first performance, it was stated in The Aeroplane that the little engine refused to take him any further. From certain remarks that have been made it rather appears that this statement might be taken to mean that he had reached a danger point so far as the engine was concerned. It may, therefore, be as well to point out that with all engines there is a time when the particular carburetter adjustment and the conditions of the atmosphere at the moment allow them to reach one particular altitude at which the machine continues to fly uninterruptedly, but beyond which it refuses to rise, so that on Mr. Pickles' second attempt either the atmosphere must have been different, or the engine must have been pulling even better than on the Saturday. Mr. Pickles believes he can beat his Monday performance, and given a really good day he could certainly do so.

It is worthy of note that before going up for this altitude test the machine had already done 4½ hours' work with pupils, and afterwards went on with school work, which shows that the engine must be kept in splendid condition.

The Big Day at Hendon.

Next Saturday's meeting at Hendon ought to be quite one of the most interesting of the year, and one can strongly advise every reader of The Aeroplane to visit the London Aerodrome on that day. A very special programme has been arranged, and it is hoped that a number of officers of the Royal Flying Corps will compete in addition to those of the Special Reserve and of the Territorials who are already aviators, for machines can be provided for all who wish to fly. In addition, there will be a number of famous civilian aviators competing in the open events.

A special feature will be the review of a large number of aeroplanes by a representative of the Secretary of State for War. This review alone will well repay a visit to the Aerodrome, for it will give the public an opportunity of seeing more aeroplanes at once than has ever been possible in this country.

Quite a novelty is the Cross-country Bomb-dropping Handicap for the Naval and Military gold cup presented by Mr. Henry Knox. This event will be contested over a nine miles' course to Elstree and back, to be covered twice by the competitors, and the bomb has to be dropped on the target in the centre of the aerodrome, on completion of the first circuit.

The cup will be won by the pilot who first crosses the finishing line, the machines having started in rotation according to the handicap. An additional silver trophy will be given to the pilot whose bomb is dropped nearest to the centre of the target. This event is open to Naval, Military, and Territorial Officer-Pilots only, active or retired.

After this contest the preliminary heats of the Grand Open Speed Handicap will be decided over a four laps (six miles) course, with six laps (nine miles) for the final. The prizes for this race are the London Aerodrome Trophy and 80 sovs., and it is also open to civilian aviators.

The next event will be a Military Cross-country Handicap Race, twice over a triangular course of twelve miles for the Hendon Gold Cup. The race is restricted to Naval, Military, and Territorial Officer-Pilots only, who must carry an observer as passenger. The actual course will not be divulged until one hour prior to the race, when each competitor will be handed a marked map of the district showing the course.

At certain points along the route in this race there will be stationed small detachments of Territorials, some of whom will be equipped with field guns. A silver trophy will be presented to the observer passenger who hands in to the judges the most accurate report within 30 minutes of the finish of the race.

This event will be followed by exhibition and passenger flights, and a Military aviation display, comprising quick dismounting and erecting tests, dispatch-carrying, signalling, etc. etc.

Then the final heat of the Speed Handicap will be decided, after which there will be further exhibition flights.

On this occasion, soldiers, sailors, and Territorials in uniform, and reservists wearing badge, will be admitted to the various enclosures at half-price.

All-Steel Wing Covering.

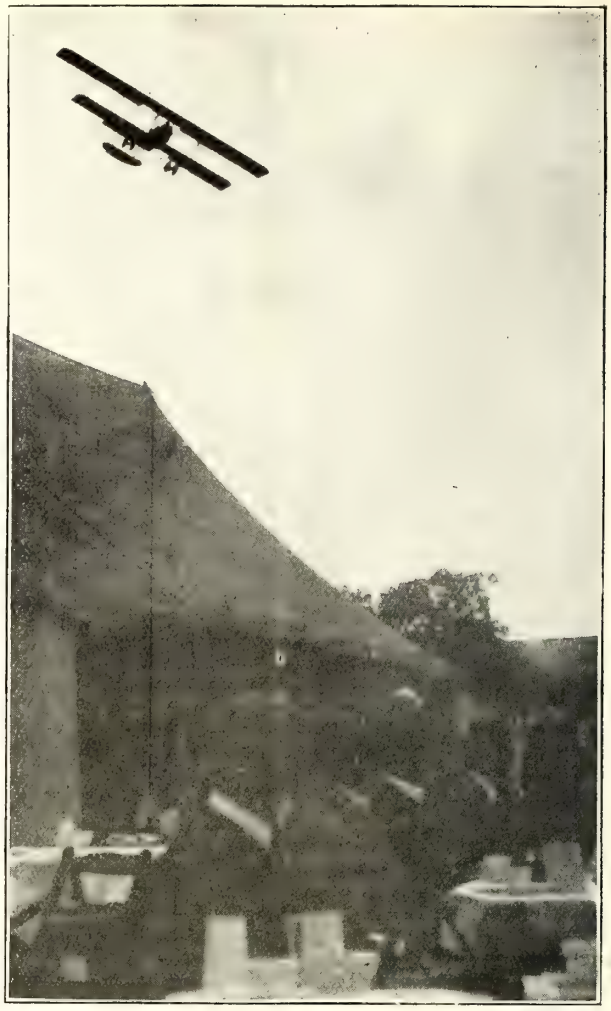
In view of the danger of fabric-covered wings splitting when once punctured, if the load on the planes exceeds a certain amount per square foot, the Cellon Company have produced a new wire-woven fabric composed entirely of steel wire gauze of the finest quality.

When treated with a special kind of Cellon dope, the gauze is perfectly air-tight, and impervious to weather, the dope sinking in between the wires and casing them outside. It naturally weighs more than ordinary fabric, but the total added weight on a machine weighing, say, 1,200 to 1,500 lbs. is probably not sufficient to make any material difference, whereas the extra strength not only prevents any possibility of the fabric splitting when punctured, but stays the whole wing together in a way which is impossible with any other system.

This new idea, for which application for patents has been made, seems well worth the most careful investigation, as it appears to possess the elements of a revolution in wing construction.

Fittings For Sheds.

Now that aviation schools are being organised on business-like lines, and that an attempt is being made to keep the sheds in a condition fit for human visitation, various little fittings are being introduced to add both to the tidiness and economy of things. Those who take a real pride in the neatness of their sheds will find a number of useful little things in the catalogue issued by Tom Norton, Ltd., of Llandrindod Wells.



M. Verrier on the new Maurice Farman startles the tea-tables at Hendon on Saturday.

One thing that certainly ought to be in every shed is the "Notron" waste oil catcher, which is a specially made metal tray to be placed under the engines to catch the oil which drips when the machine is standing in the shed. These trays are not only useful for this purpose, but also make washing baths when it is desired to wash working parts in paraffin during overhauls. The edges of the trays have a patent wooden frame, so that if the machine runs over the tray when going into the shed no damage is done.

Another useful little fitting is the "Notron" garage tidy, which is made to hang on the wall of the shed, and is fitted up complete with spoke brush, sponge, leathers, polishing cloths, metal polish, aluminium paint, grease cloths, sponge cloths, etc., so that everything for the beautifying of the machine is handy and accessible.

Another speciality of the firm is the "Notron" stove, which burns a patent fuel which is exceedingly economical. Quite a small-sized stove is sufficient to keep a shed reasonably warm, and if placed under a water-cooled engine at night during even the coldest weather will effectually prevent the water from freezing. A variety of excellent garage lamps and assorted tools are also shown in the list, which will be equally useful to motorists and to aviators. The writer has had considerable experience of Mr. Tom Norton's goods, and can vouch for the fact that, although cheap, they are always of excellent quality, and the fact that he is able to do a large business with the best-class people all over the country from such a comparatively distant place as Llandrindod is *prima facie* evidence that he treats his customers properly.

Gyroscopic Effects and Accidents.

Mr. Thomas Preston Brooke, of Chicago, U.S.A., has sent the following letter on the subject of the gyroscopic effects of rotary motors. As all readers of The Aeroplane know, the danger of the unbalanced gyroscopic engine has often been pointed out in this paper, but Mr. Brooke seems to overestimate the effects of the force generated by the Gnôme, which scarcely seems so powerful as he believes. At the same time it would be interesting to have proper experiments carried out by an independent authority on gyroscopics. Most of the accidents mentioned by Mr. Brooke have been traced to quite other causes.

Mr. Brooke says :—"In view of the great number of fatal aeroplane accidents that are occurring, and the wild and varied guesses at the cause, it seems nothing short of criminal to keep from the public the findings of a number of men who have devoted years to scientific and practical experiment in an effort to discover and remove the chief danger of aviation. If you will take the trouble to look up the records of all the fatalities to date you will find that by far the greater part of them occurred to aeroplanes having as a motor either a revolving cylinder motor or a motor possessing a high-speed flywheel. You will also find that in the reports of a majority of these accidents that the same wording fits every case with hardly any variation from the following :—'The machine seemed to falter for an instant, shuddered slightly, then turned its nose downward and plunged.' In the minds of those that have made a thorough study of the erratic action of gyroscopic force there is not the slightest shadow of a doubt but what all of these accidents have been directly caused by this force being generated in the motors.

"Over six years ago the writer made the discovery that under certain conditions gyroscopic force is an extremely dangerous article, and is the very last thing that one would think of taking up in an aeroplane. While my theory met with ridicule on nearly every side I fought strenuously for its recognition, but it was not until nearly four years later that any public mention was made to show that others were beginning to find the truth. This mention appeared in *Scientific American* under date of April 23rd, 1910, in an account of the accidents that killed Le Blon and Delagrange, both of whom were flying aeroplanes equipped with Gnôme motors, and stated that 'the gyroscopic action of the motor undoubtedly had something to do with both of these accidents.' I wrote warning after warning to the daily papers, and also to all the aeronautic journals, none of which were printed. Then last year, in April and May, two of our aero magazines printed articles by the writer; the publication of these articles seemed to set the ball rolling, and a number of daily newspapers and periodicals gave space to the subject.

"With one notable exception, Baron E. Adrian Von Muffling, whose able article on the danger from gyroscopic force was printed in the *Fly Magazine*, April, 1912, I have fought the fight alone on this side of the water. In the past year a number of prominent scientists and engineers of France, England, and Germany have made the same discovery, and have in positive terms given their warnings through the foreign aeronautic journals, but so firmly rooted is the belief that gyroscopic force is a stabilising agent that the public, makers of aeroplanes, and even the aviators themselves, were slow in recognising this great source of danger.

"Belief in the new theory and distrust of the Gnôme and similar motors have grown so rapidly in the past six months that the Seguin Brothers, makers of the Gnôme motor, have been forced to place what they are pleased to term a test on their motors. This so-called test would be a huge joke were it not for the fact that it has caused the deaths of several fliers. I believe I am justified in saying that it caused these deaths, because, had a proper test been made, the danger found and the truth published, Quimby, Willard, and others would not have afterwards risked their lives behind these motors.

"Unfortunately there is absolutely no way in a laboratory of reproducing the exact conditions existing in an aeroplane in flight. Perfectly free suspension is necessary so that in the tests by the Seguin Brothers the gyroscopic force generated was almost entirely transmitted directly to the earth through the motor's support. While the proportion of gyroscopic force registered on the test scales employed by the Seguin Brothers was so small as to be scarcely worth mentioning, the force that escaped to the earth through the pedestal of the motor was so great, as has been conclusively proven by Brennan, that it was capable of sustaining thousands of pounds. Furthermore, these tests by turning the motor proved nothing at all, for it is not in these turning movements that the danger lurks: A very slight sudden lift or drop in the front end of the aeroplane is what excites gyroscopic force to the danger point. These disturbances are not constantly occurring, but are liable to happen at any moment, and the tremendous twisting force that is instantly set in motion is so great that the front of the machine is pitched violently downward, and is at once beyond the influence of the control levers. I believe the Seguin Brothers were perfectly honest and made what they considered a fair test, but they exhibited lamentable ignorance of gyroscopic force and the causes that excite it in our aeroplanes.

"It is very unfortunate that the writer, who discovered the source of danger, should also have been the inventor of a motor in which gyroscopic force is entirely eliminated, as my warnings have been repeatedly turned down by the Press, because, as they said, 'I had an axe to grind.' Although the principal countries of the world have granted me broad basic patents on my non-gyroscopic aero motor, I want to say that if there was no other way, and it would be the means of saving but one life, I would gladly give my patents to the world in the interests of humanity.

"As we must all give credit to our aeronautic journals for a great part of the wonderful progress made in aviation, so must we also blame them for the ruthless slaughter of our aviators in cases where the editors persistently refuse to print the truth just because they cannot see it themselves. The lives of hundreds of fliers are at stake, and it would seem that where the slightest doubt exists an effort should at once be made to get at the facts. I would therefore suggest that a committee of five, or more, be appointed, this committee to be composed of competent engineers and scientists who are in no way affiliated with the makers of the Gnôme or any similar American-made motor, or with the Wright Company, and the results of the tests and observations made by this committee given world-wide publicity. The writer will be pleased to contribute a mass of evidence, furnish apparatus and give demonstrations. Also Baron Von Muffling and others would undoubtedly be glad to assist. It would be very proper that any expense attached to this inquiry should be borne by the Aero Club of America.

"As this is a matter of most vital importance to all nations, there should be no delay in getting down to the real facts; I therefore urge you in the name of humanity, and by all the principles of fairness, to publish this letter."

An Idea in Materials.

Writing from Paramé, Mr. Denys Chataway says :—"I have discovered a very interesting little workshop in St. Malo where wood is treated in a very neat way, and is made, so it is claimed, 160 per cent. the strength per weight of ordinary wood. They cut the wood in strips, but instead of cutting it flat the surface is serrated. The serrations of each strip are fitted into those of another with fabric (Egyptian cotton, I think) in between, and it is all glued up. The number of strips varies according to the strength required.

"I tested a long bit made of two strips only about 1 in. by 2 in. sections. It 'gave' nearly as much as ordinary wood, but was practically impossible to break. The strength with several layers must be enormous. One was tested to see how it kept its shape. It was 3 metres (10 ft.) long, and was bent half a metre (20 in.) out at the centre. It was kept thus for 24 hours, and it then sprang back to within 2 mm. of straight. They bind it round outside with fabric, which they claim makes it weather proof. One piece resisted all weathers for a month without deterioration.

"Up to the present they have only made wireless telegraphy masts, and spars for the French Navy, for which they have a great many orders on hand. They now intend to put out spars and struts for aeroplane work. They have an ideal factory, and M. Charpentier, the inventor, looks a regular genius. He showed me some interesting floats for aeroplanes which are a great improvement on the present type, and with a little alteration should be great."

For Cheap Propellers.

The proprietors of schools, and aviators doing exhibition flights under circumstances which are likely to be destructive of propellers, may be interested to know that Robert P. Miller and Co., of Greek Street, make a speciality of high-class laminated propellers at very low prices. These are sold at so much per inch thickness at the boss, the length being anything required up to 9 ft., beyond which special prices are charged. Messrs. Miller and Co. also make a feature of spars for planes and of engineers' patterns. Mr. Miller personally has had a great deal of experience of woodwork, and he is worth considering when anything of this nature is needed.

A Memoir of Mr. R. C. Fenwick, by One Who Knew Him.

Mr. Fenwick was not, as has been generally reported, a native of Freshfield, Lancs., but of South Shields, in the county of Durham.

He was educated at Oxford House School, in the island of Jersey, and shortly after leaving there his love of engineering resulted in his choosing that profession, and he was apprenticed to the Northern Press, Ltd., a well-known printing-machine firm. While there he saturated his mind with literature dealing with motors, and constructed in his spare moments a tricar which was highly successful. After serving his time he went to sea to obtain general experience, but after obtaining his second engineer's certificate he deliberately left the sea (contrary to the advice of his friends) in order to join Messrs. Brooke and Co., the well-known motor-boat builders of Lowestoft.

After leaving there he acted as Mr. Warwick Wright's mechanic in motor-boat racing at Burnham on-Trout. He followed him shortly afterwards to the Isle of Man to race Metallurgique cars. Mr. Warwick Wright said then that he had "got just the man he wanted, a man without any nerves at all."

Very shortly afterwards he was successful in competing with others for the post of engineering expert to Mr. W. P. Thompson, of Liverpool, who was then engaged in experiments with hydroplanes (in the proper sense of the word). Later, Mr. Thompson decided to construct an aeroplane according to certain ideas of his own. This was made by Messrs. Handley Page, Ltd., under Fenwick's supervision. After that he built for Mr. Thompson, with the assistance of a carpenter, the monoplane constructed with the propeller behind the pilot, but was not, of course, identical with the machine which took part in the Military Competition.

Mr. Thompson quite recently, for private reasons, decided to give up experimenting, and handed over the machine on terms to Messrs. Fenwick and S. J. Swaby, who was also in the employ of Mr. Thompson.

The old Mersey, with shorter wings sloping up from the body and a longer tail, was, in the opinion of many, as nearly a perfect monoplane as has yet been constructed, for steadiness and general ease of manipulation. Unfortunately, only a month or two ago Fenwick landed it on some quicksand which overturned it at sixty miles an hour and threw him out, again without injury. Reconstruction was necessary, and as the War Office trials were rapidly approaching, it was adapted to carry the heavy load required in the duration test. The engine and the body were the same as before, but nothing else.

It is possible that in shortening the booms which carried the tail, and straightening the longer wings, errors were made which would have been rectified had there been more time for trial. It is impossible to say whether the old Mersey would have been automatically stable enough to encounter without disaster the sudden gusts which destroyed the new one; but those who saw the old one fly, or were passengers on it as I was, would answer with confidence in the affirmative.

As a pilot there is no doubt that Mr. Fenwick, although self-taught in flying as well as in the science of construction, was thoroughly capable. He had, as mentioned above, two previous smashes, neither of which can be traced to his fault by any stretch of imagination. In spite of this, his nerve was quite unbroken, as those who knew him best can testify.

He feared nothing but an accident which would disable him permanently from action. As a personal friend I rejoice to think his death was instantaneous, but I cannot but regret with bitter sorrow the disappearance of a man so enthusiastic and able to advance by personal experiment the conquest of the air.—W. R. B.

Not Lost But Gone.

Mr. A. G. Leeper writes:—"A mechanic borrowed my mackintosh (without asking) from the mechanics' dining tent at Amesbury Aviation Camp on August 17th. I have failed to gain possession of it to date. Could you help me, through the medium of your valuable journal, The Aeroplane?"

[Will the borrower please return the coat to Mr. Leeper, at this office?]

Something Worth Seeing.

An exact duplicate of the Austro-Daimler engine which was fitted to Mr. S. F. Cody's biplane, on which he won £5,000 worth of prizes in the Military Aeroplane Competition, is now on view at the showrooms of the Austrian-Daimler Motor Co., in Great Portland Street, who take this opportunity of extending a welcome to all lovers of engineering. There are many special features incorporated in this design, and interesting points in its construction will be lucidly explained to visitors.

The Language of the Air.

Napoleon boasted that he had abolished the Alps. The modern aeroplane may be credited with having abolished frontiers. The question is, what language is to be spoken by those new voyagers who start a journey in one country and complete it in another. Mr. Henry Farman, in a letter to a London morning paper, advocated Esperanto. In a report addressed to Messrs. Burroughs Wellcome and Co., Mr. Farman emphasises this and indicates at the same time the utility of another accomplishment, namely, a knowledge of first aid.

"I am happy to know," he reports, "that you are using the Esperanto language for your commerce, and I beg to congratulate you.

"As I have often said before, I find it is very necessary for every aviator to have with him one of your 'Tabloid' First Aid cases, and to know Esperanto. With these two he can go anywhere. Fortunately, I can say that I have not yet had a serious accident, but working on the various apparatus, I have hurt myself several times, and was then glad to use the 'Tabloid' case, which saves much valuable time. It is very necessary for aviators who go to all countries to know Esperanto and to possess a 'Tabloid' case for first aid. In this way he can go anywhere and be his own master. This is the advice I give always from my heart to the novice aviators in my schools."

A Useful Cleanser.

Strange as it may seem, there are some aviators who have old-fashioned ideas in favour of cleanliness, and to such one can recommend a new liquid cleanser which is now being put on the market in the name of Zardol. The writer has been using this for some time and finds it excellent for the removal of burnt castor oil and the sort of griminess which is the result of contact with aeroplanes and cars. It has the advantage that after having removed the oil it does not leave the skin hard and dry as some liquid soaps do.

Cellon in Austria.

It was worthy of note that the Lohner biplane on which Lieut. von Blaschke lately beat various world's record was treated with Cellon dope. As a result of long-continued tests, the Austrian Government have given instructions that Cellon is to be used instead of other dopes for wing fabrics.

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(Total distance about 25 miles).
For the Hendon Gold Cup
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Open to Naval, Military and Territorial Officers only (active or retired), who must carry observer as passenger.

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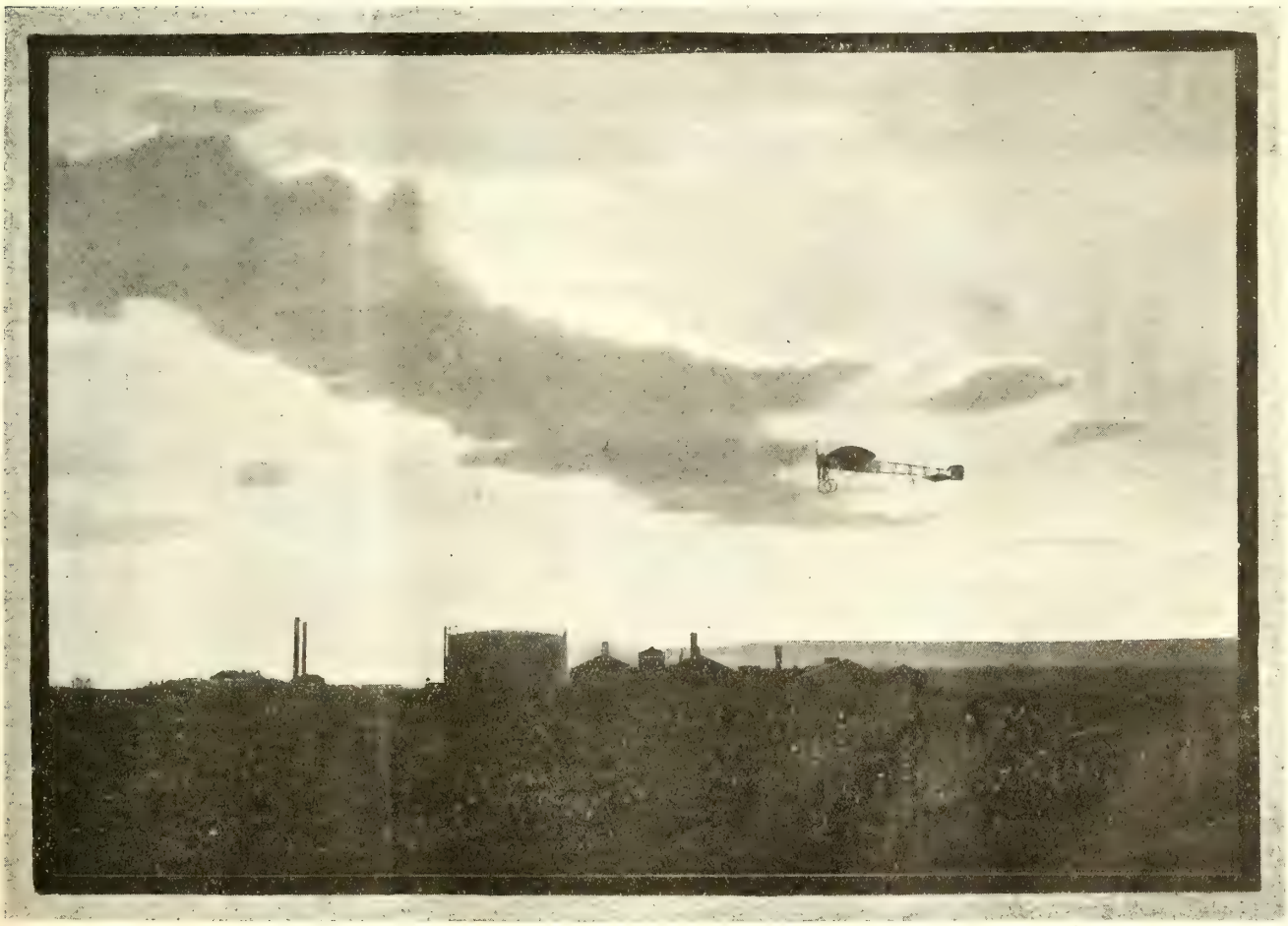
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AN EVENING SCENE,—A.D. 1912.



The artist of the future will doubtless give us pictures of aeroplanes returning to roost in the evening. As Nature generally anticipates Art, a photograph is shown above of Mr. Victor Yates on Mr. Fowler's Blériot flying over a corner of the Eastbourne Aerodrome one evening last week.

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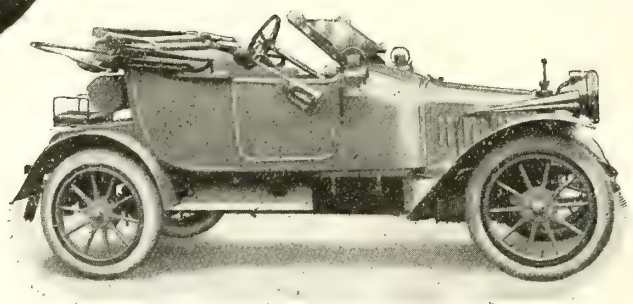
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The Value of Responsibility.

A few days ago a member of the Royal Aero Club, one who has seen considerably more flying here and abroad than most men, and who has spent a considerable amount of time and money in the air himself, remarked to the writer: "I'm gradually coming to the conclusion that no one who has any responsibilities ought to fly." Other people have expressed the same idea in slightly different terms, so evidently the opinion is fairly prevalent that flying ought to be left to young men who do not matter, that no married man, no man with a business, or the future of a family line, dependent on him, no man, in fact, whose death affects anyone very much should risk his valuable neck on an aeroplane.

Nothing can be so harmful to the progress of aviation as that such a doctrine should become generally accepted. As a matter of fact, the greater the number of steady-going, quiet-living men with responsibilities to their families and businesses who take to flying the better for everyone concerned, and, contrariwise, the greater the number of hare-brained, reckless, irresponsible youngsters who fly simply because of their love of applause and popularity, the longer it will be before any real progress is made.

If one takes the list of those who have been killed while flying, and thinks over such victims of fatal accidents as one has known personally, it is quite astonishing to see how few of the quiet, serious students of flying have actually been killed, while on the other hand, those whom one has known to be needlessly daring, or reckless, or careless, supply by far the greater number of casualties.

Naturally one may feel inclined to argue that the careful man only flies under the best conditions and consequently takes no risks, with the result that he spends much less time in the air, and so never becomes really valuable as a pilot. This view is, as a matter of fact, entirely wrong. Though one hears very little about their flights, M. Blériot and the brothers Maurice and Henry Farman do an immense amount of flying. They make a point of testing for themselves every alteration they make in their patterns, and they themselves fly for long periods on every new type of machine before adopting it as standard. The same remarks apply to M. Caudron, M. Hanriot, and other French constructors, and may account to no small extent for the excellence of their work. In France also there are a number of well-to-do responsible business men, of the class of Senator Reymond, who fly regularly and steadily, picking their time and place and weather with a view to physical comfort and safety. Such men inspire in the community a confidence in the safety of flying which is not destroyed by the occasional accidents which happen.

In this country the men with responsibilities who fly regularly are few and far between. Of our constructors the only regular fliers are Captain H. F. Wood, of Vickers, Ltd., Lieut. Porte, R.N., of the Deperdussin Co., Mr. T. O. M. Sopwith, and Mr. Claude Grahame-White, all of them steady, reasonable fliers, who know just what they are doing and take no chances. True, these remarks might not have applied to the two last a year or so ago, but increasing responsibilities have brought wisdom with them. Mr. Melly, of Liverpool, is another example of the man with responsibilities who flies regularly, and Mr. Ewen is another. Mr. Roe and M. Blondeau seem to have given up flying, and M. Ducrocq, another very steady flier with business responsibilities on his shoulders, has not done much himself lately, so one can scarcely quote them as examples of business men who fly regularly, though as practical fliers of high class and much experience they are of great value to our industry.

The practical steady flier who is also a constructor is actually a most valuable asset to the industry as a whole, for his machines are much more likely to inspire confidence than are those turned out by a maker or firm whose machines are designed purely on theory by a high-class scientist and are tested by paid pilots, who are afraid of losing their jobs if they speak their minds as to the danger, mechanical or aero-dynamic, of the machines they are obliged to fly. It is one of the peculiarities of aviators, as it is of sailors and motor drivers, that they will rather risk their necks than their jobs.

Over and over again the writer has been told in confidence by pilots that certain machines are dangerous and will kill someone sooner or later, and in only too many cases the information has been correct. In some cases where the danger has been beyond question it has been pointed out to the owner or maker, either privately or in print, and in several of these the dangerous machines have been altered or even destroyed.

Yet, knowing the dangers of their machines, pilots go on flying them, hoping every time they go up that the fatal accident "won't come this time." A pilot by sheer skill does a fine flight in bad weather, or over a bad country, the performance is duly boomed by the firm, and so people are led to have confidence in a death-trap, while the law of libel, even in France, prevents the unfortunate writer on aviation from saying what he knows to be true.

If a pilot had the responsibility of a wife and children to make him cautious, the fact would certainly inspire one with more confidence in his reliability, one of the recent fatalities to the contrary notwithstanding.

As Applied to the Royal Flying Corps.

Both for entirely different reasons, and for similar reasons, the original idea that applicants for appointment to the Royal Flying Corps should be unmarried is a mistake.

At the present moment there seems no doubt that the authorities are afraid of a fondness for trick flying growing among the younger officers of the Corps. They fear that some of them may be killed in what children call "doing dags" against one another, or in what is in modern slang known as "stunt flying." Hence the present official attitude which discourages officers from flying in public, or even from visiting public aerodromes on their machines, though, as a matter of fact, it is all for the good of Service aviation that the British taxpayer should have personal proof that the Flying Corps can produce pilots as good as civilian pilots, and that the standard of flying in the Service should be kept up by occasional competition with the best civilian aviators in cross-country races, though trick flying of all kinds should be sternly discouraged.

The best way to avoid unnecessary fatalities is to select men with a due sense of their responsibilities, and then rely on their common sense, rather than on the restraint of disciplinary measures. There is a natural objection to any man in the Services advertising himself, but there is a happy mean between the killing of enterprise and the killing of officer-aviators, and this can be achieved to some extent by leavening the Corps with men who have the responsibilities of a wife or of their duty to their family name in the way of ultimate marriage.

Another outlook on this question is that of the man who is engaged to be married, or hopes to be engaged when his rank permits. For the sake of the girl in the case, it is desirable that he should be married as soon as possible, for in the event of his death, or of a bad smash, the position of the couple who are engaged, or merely hope to be engaged, is altogether anomalous. The girl who has the pluck to be a soldier's or sailor's wife must always be prepared to become his widow, and one always knows, whenever war breaks out, of a number of men who get married just before going on active service, so as to give the girls a wife's right to look after them if wounded, or a widow's right to what a soldier grimly but graphically described as being "in at the death."

The officer who takes to flying may be foolish enough to find that aviation, fascinating as she is, does not absorb all his attention or affection, and some woman may, equally foolishly, be ready to take the risk of marrying him. If they want to get married surely it is better that they should do so, for the new responsibility may add that touch of caution which will preserve a valuable officer for his country's service in time of trouble; and, anyhow, the marriage affords the opportunity for perpetuating a type of man badly needed by the nation.

Taking it all round, the more fliers we can have who possess responsibility for something besides their own lives, the better for the country and the better for the future of flying. As usual, Mr. Kipling supplies an apposite comment in the lines :—

"Down to Gehenna, or up to the Throne,
He travels the fastest who travels alone."

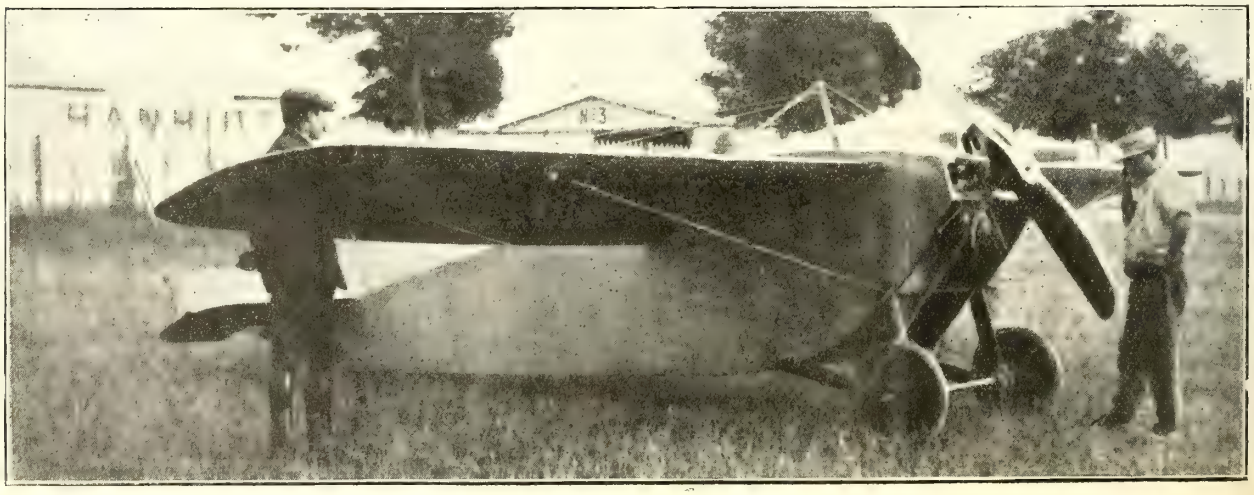
But the race is not always to the swift, and the "young man in a hurry" is apt to come to grief by the way. Let us have some who are inclined to hasten slowly, to keep the average just.

Hanriot Activity.

Considerable activity may be expected before long on the part of Messrs. Sabelli and Sippe, the pilots at the Hanriot School at Brooklands. Three new Hanriot monoplanes built by the Blondeau-Hewlett firm at their new works at Clapham will soon be ready for use, and a French-built machine of the latest type is coming over. Recent tests made by M. Ducrocq, the general manager of Hanriot (England), Ltd., with the latest type Rossel-Peugeot engine showed it to be quite economical, both in petrol and oil, as compared with other rotary engines. The workmanship has always been of the very highest class, as is only natural in any product of the Peugeot firm, and consequently one may expect to see the new Hanriots doing big performances fitted with this engine. The fact that the War Office did not see fit to purchase the two 100-h.p. Hanriots which performed so magnificently in the Military Aeroplane Competition does not seem to have discouraged the firm to any extent, but rather seems to have increased their determination to prove that if the British Army want the very best machines they must on its merits buy the Hanriot.

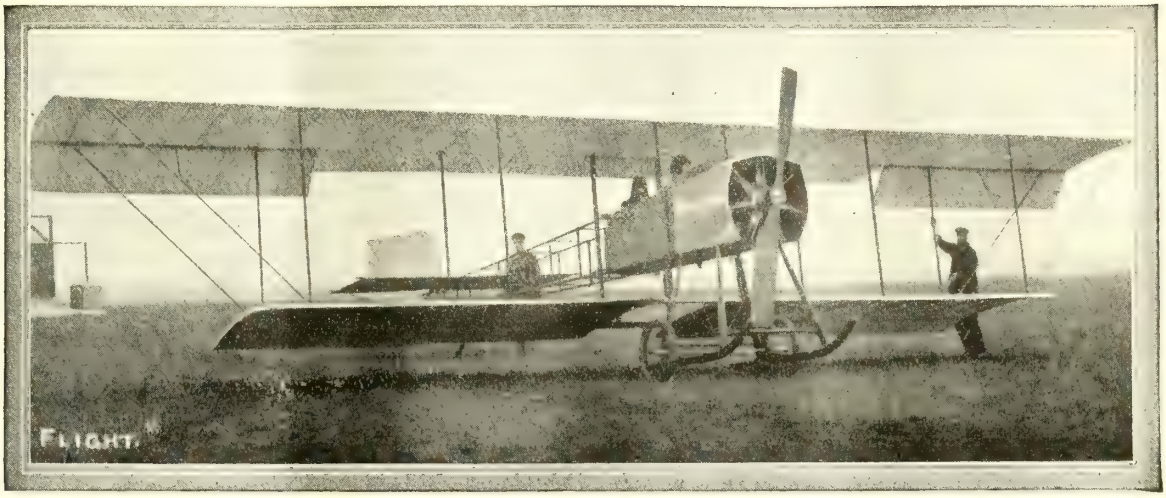
The Avro in Portugal.

Messrs. A. V. Roe and Co. have had the excellence of their machines recognised by an order from the Portuguese Government for a 50-h.p. Avro biplane. The machine has been dispatched to Lisbon, and Mr. Copland Perry has left to act as pilot, accompanied by Mr. W. H. Sayers as chief engineer. It is certain the machine will give a good account of itself, and naturally further orders from Portugal will follow.



The 100-h.p. Hanriot racer, photographed recently at Reims by a reader of "The Aeroplane" touring in France.

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The Military Aeroplane—Some Possibilities.

BY W. E. de B. WHITTAKER.

Three years ago a constructor who built an aeroplane was surprised if it flew; to-day he would be surprised if any newly-designed machine of his did not fly. Three or four years is a short space of time, but the change of standpoint in aviation matters during that period is enormous. One is now dealing with facts and not with wonderful fancies. Aviation is becoming a business in place of a sordid romance. The aviator is losing his assumed god-like attributes—shall we say?—and is becoming almost human. And all things relating to human flight are changing from the abnormal to the normal.

Before the aeronautical dreams of early inventors had reached fruition the military class had realised the high value of the aeroplane to an army, and so soon as practical flying machines came into being two or three countries of advanced ideas purchased aeroplanes for their troops. As few machines flew at all, these countries had to buy such types irrespective of their form, that they rose into the air under human control was sufficient.

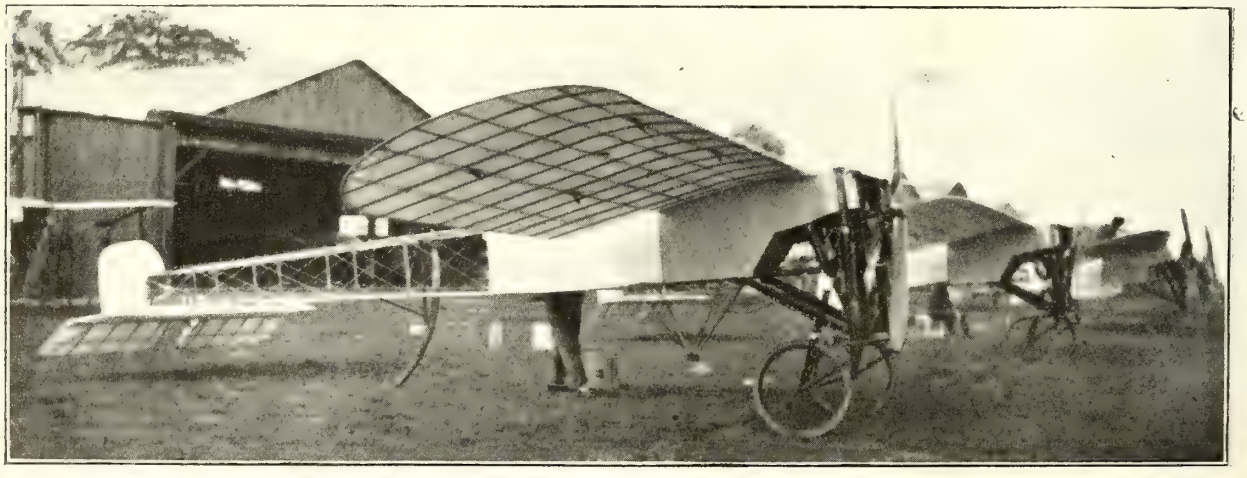
For the past two years every effort has been made to design and produce machines of the highest aerodynamical efficiency, irrespective of other considerations. Speed and airworthiness were of the first importance. The numerous flying meetings and public competitions have all helped greatly in the production of the efficient aeroplanes, as in the majority of cases such prizes could only be won by the display of some particular attribute of value. Racing increased the speed, altitude contests called for plane efficiency, duration trials induced the production of more reliable engines, and so on. The chief incentive to advancement in any science is the desire to surpass the efforts of others, and such rivalry cannot be too far encouraged.

To-day we have reached a stage at which, though the aeroplane is still very far from perfection, it is at least a highly practical machine. Monoplanes and biplanes capable of passing exacting tests can be constructed by the score, and the safety of flying has increased to a surprising extent. At this stage it is perhaps possible to pause a little in the race to produce the most efficient aeroplane from a purely aerodynamical point of view and devote a little time to the design of a machine specially suited to military needs.

The scouting aeroplane is of the first importance, and of this class a machine devoted to a combination of strategical and tactical reconnaisance stands supreme. The requirements are a clear range of view for the observer, easy controlability for the pilot, power to lift moderate weight, and simple construction. A very high speed is not an essential. So take first the question of the observer's view. Anyone who has, during even a circuit of an aerodrome, endeavoured to make notes of the appearance of the ground below or of passing events will realise the close attention required. Little things, which in a pleasure flight would be almost unnoticed—such as the tractor draught on a monoplane or the view cut out by the motor on a tractor aeroplane—add greatly to the difficulty of accurate note-taking. Again, unless one is deliberately making observations, one does not realise how little can be seen of what may be flying directly above when one is in certain types of biplane. It is necessary that an observer should be able to see everything directly below and in front. The view to the back is not of such value.

From the beginning of aviation a very large class of designers have pinned their faith to a type of machine in which engine and screw are in front of the pilot. Most monoplones have followed this idea from obvious constructional reasons. As to biplanes, as far back as the latter months of 1908 Captain Ferber and Georges Legagneux flew a tractor biplane at Issy-les-Moulineaux ("Antoinette III"—"Ferber IX," as it was alternatively called). A. V. Roe, in England, de Pischoff, Voisin, Santos Dumont, Goupy and Bréguet, in France, were all early exponents of the type. The idea—which in the position of the engine follows motor-car practice—is so obvious as to make it absurd for anyone to claim the personal honour of being its originator.

The type has its great advantages, one is assured, from an aerodynamical point of view. It is possible, without placing passenger and pilot in chilling isolation several feet in front of the main planes, to use a flat, non-lifting tail. There are many other points more or less important which can be gleaned from the idle conversation of any designer, but the dominant idea with most people is that the pilot is safer if the engine is in front in the case of a sudden and inelegant descent, though surely the pace at which the pilot's body would hit the engine does not differ much from the speed with which the engine hits the ground. One is told that in the case of "engine-behind" biplanes the motor is likely in an accident to cushion itself not too gently on the spongy body of the aviator, crushing



HOW FRANCE BUYS AEROPLANES. When this photograph was taken by a reader of "The Aeroplane" at Etampes last month, there were thirty-six Blériots in front of their sheds. Fifteen of them were tested by M. Perreyon and handed over to the French Army in the course of the morning.

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	" " " "	FINAL	A.B.C. FIRST
June 8	Hendon "SHELL" Trophy,	1st Heat	A.B.C. FIRST
	" " "	FINAL	A.B.C. FIRST
July 13	B.A.R.C. Cross Country Handicap,		A.B.C. FIRST
July 14	Brooklands Aero Club Speed Handicap,	1st Heat	A.B.C. FIRST
	" " " " "	FINAL	A.B.C. FIRST
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out what remains of his life. Curiously, statistics tell us that only one death has occurred which can be definitely attributed to this cause, that of Captain Ferber at Boulogne in 1909. Other cases in which the engine has fallen on the aviator the latter had already passed away. The objections to the engine in front are the interrupted view, the constant oil bath and, in the majority of cases, the slip-stream of the tractor screw. The "engine-behind" aeroplane has in its favour the large area of forward vision, absence of oil and draught (if a proper screen be fitted). In addition, a machine gun can be fitted in front and employed over a large arc. The use of a quickfirer in a single tractor aeroplane is impossible owing to the position of the tractor.

That there is no difficulty in designing and constructing a highly-efficient biplane of the "engine-behind" type is shown by the performances of the Cody, the Maurice Farman, the Henry Farman, the Voisin (type Bordeaux), all of which are equal in flying form to any other type of machine.

An obvious method of compromise to please the upholders of both points of view is to design a machine simple in propulsive principle to the Mersey, Paulhan, and de Pischoff monoplane and the Ogilvie-Wright biplane, that is with the engine in front and the propeller behind. Here again there is almost the same interruption of vision as in the ordinary tractor biplane, but in other ways it is an advance in type. A machine gun can be used with freedom. There is, however, the additional complication and weight of the long propeller-shaft and two universal joints.

A point of interest to the military pilot is the standardisation of controls. The diversity of the methods of control is great. The Wright, the Antoinette, the Nieuport, the Farman, the Depeidussin, and the Bréguet all differ in important points. An army orders machines of each type and expects its officers to master at once and with ease the varying instinctive movements required by each system. And I am assured by pilots of standing who have tried different methods that it is not possible to fly with safety two machines in succession, the controls of which are not the same. A Nieuport and a Blériot are both perfectly safe machines to fly if one's whole time is given to the one machine, but to alternate between the two can only result in positions of great danger and possibly fatality. Cannot designers devote a little time to the subject and settle on one universal type of control which can be learnt once and for all? There can be no question of patent rights, as all the best systems are already public property.

The landing chassis on a machine built for military use should be of as simple design as possible. The need of the complicated shock-absorbing devices so prevalent on early aeroplanes has to a large extent disappeared now that piloting has become almost a normal part of human life. The chassis is the most likely portion of an aeroplane to suffer damage and should, therefore, be capable of simple reconstruction as would make it possible for pilot and passenger to make any necessary repairs in the case of a slight accident.

No main stay wires should be attached directly to the chassis, as the latter can be damaged without it being obvious to a careless mechanic. Several collapses in the air have been due to this cause.

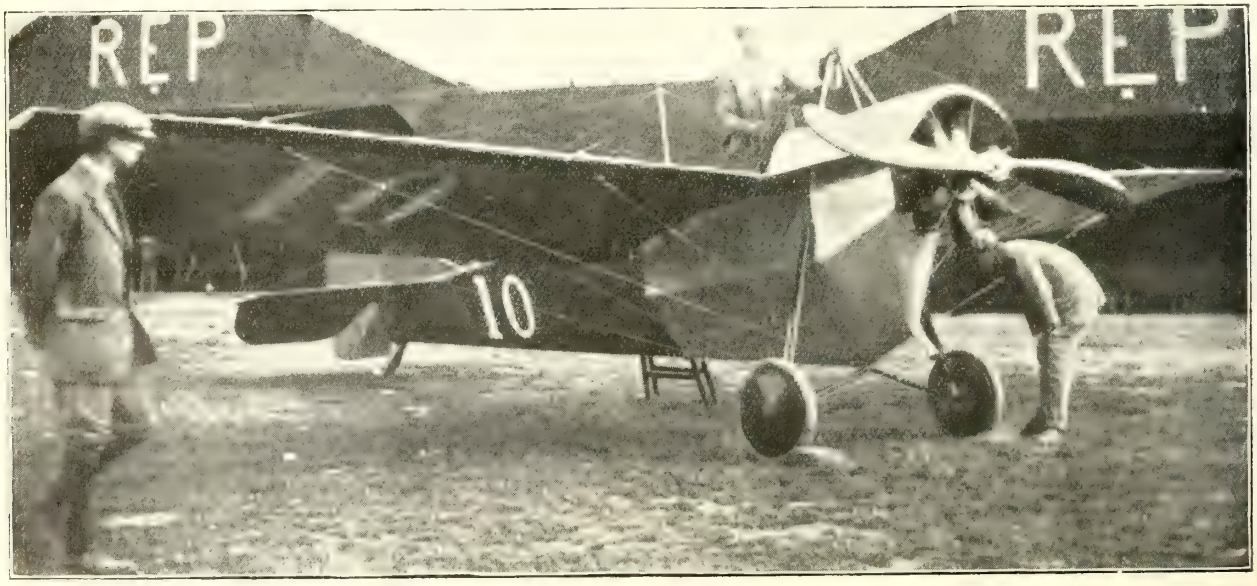
Engines should be silenced as much in the interests of the pilots and observers as with the idea of concealing the presence of the machine from the enemy.

Mr. Astley's Funeral.

H. J. D. Astley was laid to rest on Wednesday last in the quiet little country churchyard of Elsborough, near Tring, this being the church pertaining to his own country-place, Chequer's Court, which he inherited from his father. Many of his friends connected with aviation attended the funeral, and among the numerous flowers sent were wreaths from the Mayor of Belfast and the Royal Aero Club. To few men has it been given to inspire so much disinterested friendship as to Otto Astley. His quiet and often grim humour made his presence memorable in any company. Altogether he had an unusually vivid personality, and even now it is hard to realise that we are to be without him in the mundane future.

M. Jullerot Returns.

M. Jullerot, who made a name for himself in the early days of aviation as pilot of a Farman biplane, and who has for the past year or so been engaged as instructor by the British and Colonial Aeroplane Company in England, Germany, and Spain, has recently returned from the last-named country. He it at present in the doctor's hands, owing to having broken his long record of something over 2,000 flights without an accident. When landing from a flight at Madrid he unfortunately ruptured himself slightly, and had to undergo an operation. He had just recovered from this, and was making a cross-country flight on a Bristol monoplane, when his switch wire went wrong, and he was compelled to come down, landing as best he could and damaging himself considerably.



The R.E.P. racer of the latest type, photographed at Buc by a reader of "The Aeroplane" touring in France.

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Foreign Military Aeronautics.

FRANCE.

A monument was unveiled at Vanville on September 22nd by Lieut.-Col. Hirschauer (representing the Minister of War) in honour of Captain Camine, who was killed near that place on September 2nd, 1911.

A monument in blue granite has also been erected at Rigney-la-Nouneuse (Aube) in memory of Lieut. de Grailly, who was killed on the same day as Captain Camine.

Lieut.-aviator Thomas (24th Colonial Infantry) died at Givauvral on September 24th as a result of injuries received two or three days before. On September 16th, during the manœuvres, he damaged his aeroplane. It was in the course of testing the repaired machine that he received his fatal injuries.

Lieut.-Col. Bouttieaux, commanding the Versailles group, has been promoted to Colonel.

Queer principles of promotions occasionally hold in the French army, as in other countries. Services apparently deserving of reward are passed by in silence, and the blessings of the exalted fall on those whose services are yet to come. Lieut.-Col. Estienne, who has apparently done his duty with unquestioning rigidity, has been passed over in the autumnal promotion lists, while others junior to him have become Colonel. Hurt by this lack of recognition, he has now decided to return to his corps—the artillery.

A wireless telegraph outfit was fitted on a Maurice Farman biplane C.M.F. 44 of Escadrille 2 and messages were constantly transmitted throughout the recent manœuvres. The weight of entire system was only 30 kil. The following is an example of the type of report received :—

Lieut. Mauger Devarenne to General Galliéni, G.O.C., 11th Corps.

8 a.m., Noyant.—A battery entrenched, a group leaves on Noyant road.

8.5 a.m.—Hostile aviation park on the border of the Saint Maure-Sepures road.

8.7 a.m., La Celles-Saint-Avant.—Nothing on the road since Saint Maure.

8.10 a.m.—Port de Piles.

8.18. a.m.—An infantry column, about a brigade, coming from Dangé.

8.25 a.m.—A cavalry regiment passes Dangé moving towards Port de Piles, upon the Dangé-la-Hayes-Descartes road.

In the early morning of September 27th the Minister of War held at Villacoublay the first aeroplane review of any magnitude. The escadrilles recently engaged in the manœuvres were paraded for his inspection. Seventy-two aeroplanes were present, and of the following types :—Bréguet and M. and H. Farman biplanes and Deperdussin, Blériot, Borel, Nieuport, Hanriot, and R.E.P. monoplanes. M. Millerand arrived at 6.30 a.m., accompanied by Colonel Hirschauer, commanding the aeronautical service, and the general officers commanding local districts. The Grand Duchess of Mecklenberg-Schwerin was also present as a spectator. After a careful inspection each escadrille left for its permanent station by way of the air.

RUSSIA.

Two German makes have carried off the first prizes in the Russian military contest, in which fifteen machines competed. The first place goes to the 100-h.p. Fokker monoplane with Argus motor, the constructor himself piloting on various occasions, taking the Russian War Minister and the heads of military departments as his passengers. The second place was won by the German Wright biplane (80-h.p. Gnome) which Abramowitsch has been demonstrating in his native country. It may be remembered that Abramowitsch, who is in the employ of the German Wright Co., flew from Berlin to St. Petersburg on his machine, accompanied by Herr Hackstatter, a Government architect and aeronaut.

The Ministry of War has authorised the erection of a large number of big aeroplane hangars at Gatchina. Workshops for the building and repairing of aeroplanes will also be added, in addition to a meteorological office.

The dirigible balloon Yastreb was totally destroyed at Gatchina on September 22nd. It arrived there early in the morning, and descended for a halt of half an hour. On rising again, when at a height of 1,000 ft., the gas began to escape, and the dirigible descended on the trees. None of the crew was seriously injured.

GERMANY.

On September 20th, Lieut.-aviators Berger (104th Infantry) and Junghans (134th Infantry) left Cremnitz on a biplane for Doeberitz. When between Falkenberg and Niederschoene (Saxony) they fell to the ground and were killed. It is believed that some part of the control failed.

Lieut. Berger, who died in this accident, had just passed through the Imperial Manœuvres, where he had flown extensively as a scout, and was one of the most reliable aviators attached to his side. He was extremely musical, and a symphony composed by him attracted considerable attention on its performance.

Five Bavarian and four Prussian officers have entered so far for the South German Circuit, which commences on October 14th and lasts until the 20th. As a large number of non-military pilots are participating, it is believed that there will be twenty starters or more. The Austrian War Ministry is inclined to enter several of its officer-aviators should pending arrangements come to a satisfactory conclusion.

After two intermediary landings, one of which was caused by dense fogs, Lieut. Hautelmann flew from the military aviation ground at Berlin-Doeberitz to that at Strassburg. He was accompanied by a comrade. His net flying time totals seven hours and five minutes, half an hour of which was spent in endeavouring to find their way in a thick fog between Darmstadt and Weissenburg, when their compass had stopped acting for the time being. The plane used was a Rumpler-Taube with a 100-h.p. Argus motor.

The dirigible Z3 (Zeppelin) is to leave Gotha for Ohrdruf to take part in bomb-dropping practice. A new apparatus recently tried with success at Metz is to be fitted. The bombs, weighing from 20 to 30 lbs., will be dropped from a height of 3,500 to 4,500 ft., as under war conditions. The target is to be an outlined rectangle 600 ft. by 80 ft., intended to represent, roughly, a modern battleship.

A hydro-aeroplane competition organised by the Ministry of Marine will begin on October 20th at Putzic, near Dantzig. The chief prize-winning machine will be purchased by the Government. The three aeroplanes recently competing at Heiligendam will all be present.

The dirigible balloon M3 flew from 5 a.m. until 10 a.m. on September 21st in the vicinity of Tegel.

ITALY.

At Udino on September 19th, towards the conclusion of a practice reconnaissance made by four officers attached to the Appiano Military Aviation School, Lieut.-aviator Bongiovanni fell from a height of 150 metres and was killed.

The Ministry of War accepted delivery on September 18th of another 70-h.p. Renault-engined Maurice Farman biplane.

Captain Bongiovanni on a Gnome-engined Blériot monoplane took a passenger up to 4,300 ft., thus creating an Italian height record. Lieut. Montanart on the same machine also broke the Italian height record without passenger.

THE ARGENTINE.

Mr. Jack England sends the following notes from Argentina :—"The Sociedad Sportiva Argentina has made an offer to the Minister of War, General Gregorio Velez, of an aerial fleet, to be subscribed for by the public, for which purpose one million five hundred thousand illustrated postcards will be issued.

"In connection with this issue there has been a competition of drawings allegorical of aviation in its application to the art of war, and the following prizes were presented :—First prize, $250 and a gold medal; second prize, $150 and a gold medal; third prize, $100 and a gold medal; fourth prize, $80 and a silver medal; fifth prize, $50 and a gold medal. In addition there were five lesser prizes.

"The Commission appointed to organise the raising of the funds for providing an aerial fleet included : As hon. presidents—the Minister of War, General Gregorio Velez; the Minister of Marine, Rear-Admiral Juan P. Valiente; president—Baron Antonio de Marchi, president of the Sociedad Sportiva Argentina; vice-president—Senor George Newbery, president of the Argentine Aero Club; hon. secretary—Major Arturo P. Sinsoni; members—General Ramon Ruiz, Chief of the Staff; Rear-Admiral Manuel Domecq Garcia, president of the Centro Naval; Colonel Martin Rodriguez, secretary of the Ministry of War; Colonel R. Sarmiento, inspector of Engineers; Senor Eduardo Hunter, vice-president of the Sociedad Sportiva Argentina; and the directors of all the Press organs in the city."

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Launching of Aeroplanes from Warships.

Although various articles have been written on this subject, the following views may not be inopportune, owing to the undoubted importance of the question.

The subject may primarily be divided into two sections: (1) relating to launching from ships adapted for the purpose, and (2) relating to launching from ships made for the purpose.

With regard to case (1), there have been two or three proposals made of which one, at least, has been tried. A staging may be erected in the bows of the ships along which the aeroplane may get up speed before rising. This staging may be temporary or permanent. If temporary, it must be very substantially built in order to have sufficient rigidity. A structure like this, however, has many drawbacks, more especially from a fighting point of view. It presents an easy target for a shell, it interferes with the forward guns, making them practically useless, and it also interferes with the anchor-housing arrangements.

Another method is that of having a taut wire on which the aeroplane may run whilst it is steadied by two side wires. This method, although not offering so good a target for hostile guns, nevertheless interferes almost as much as the staging with the working of the guns on the ship, and also has a disadvantage in that it would be very hard to get a wire of sufficient length taut enough.

The third method is that of having a rail laid along a boom, the aeroplane being drawn along this rail and being shot off at its flying speed by means of a falling weight. Now, any aeroplane of much use must have a flying speed of about 60 m.p.h. at least, and for it to get up this speed in any reasonable distance it would have to have an enormous acceleration, otherwise the length of boom necessary would be absolutely prohibitive. Also, the ship would have to stop to prevent any lateral displacement of the aeroplane. The aeroplane would have to have side steadying wires. And, altogether, I do not think the apparatus would be a success at all.

Now as regards case (2). At present the aeroplane would have to run along the deck forwards of the funnels, etc., and this would make the forward guns almost as useless as with a staging, the only advantage being that there would be no target so prominently placed for hostile shells. All this, however, I venture to think, will be changed when internal-combustion-engined ships come into being. A clear way could be left down the centre almost as long as the boat itself. This way would be protected by guns on either side. The masts which would have to be provided for the wireless, etc., could be like those carried by merchant vessels which have to go under low canal bridges, and which consist of a sort of goal-post erection with a small mast in the middle of the crossbar. Cranes such as some warships now carry for boat derricks could be provided for hoisting up the hydro-aeroplanes after the day's work.

As to the impracticability of hydro-aeroplanes rising from a rough sea, I think that, if the wind were strong enough to make the sea so rough as to prevent rising, it would be so strong as to prevent flying at all under present conditions.

I venture the suggestion that, until the motor-driven ship really arrives, the only way of using aeroplanes with regard to warships will be by having hydro-aeroplanes, which may be slung overboard like a boat and which may be taken aboard again and housed after their work is done, but not necessarily after each flight.—L. Briggs.

Aeroplanes in Naval War.

The uses of the aeroplane in naval warfare are the following:—

(a) Coast Defence.
(b) Coastal Attack.
(c) Fleet Scouts.
(d) Fleet Control Positions.
(e) Night Attack on destroyers or ships.

In the above it is presumed that the machines carry wireless, are fast and fairly silent, fitted with floats, and can accommodate a pilot, observer, and operator.

As to (a), bases may be established along the coast from which a machine sets out and patrols 50 miles from the coast till relieved by another. As he sights the hostile vanguard before they could sight him on a clear day, he communicates by wireless with his shore station and so calls up troops. The shore station then informs the defending fleet of the state of affairs.

The machine would need to fly high and fast, carry plenty of fuel, and an observer and transmitter.

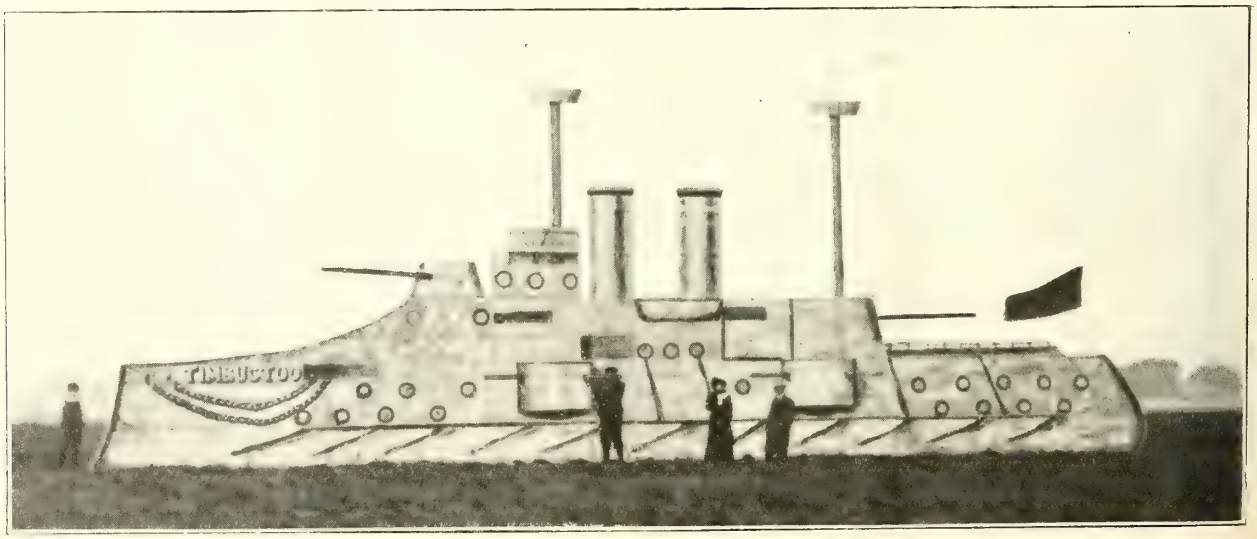
As regards (b), small fast machines capable of carrying plenty of fuel, with a pilot and observer, could attempt the destruction, or partial destruction, of the enemy's shore and harbour possessions, such as docks, canals, arsenals, ships, and troops. They could carry or signal news of the enemy's movements to outlying ships or to shore stations. This might necessitate machines travelling far and doing a lot of damage, without much hope of returning again.

In the case of (c), machines would set forth from fleet motherships and act as the eyes of the fleet, keeping always within wireless touch of destroyers or of the fleet itself. They would carry a pilot, observer, and wireless operator.

Concerning (d), it seems that an aeroplane keeping above the hostile battle-fleet could be made a very useful and efficient control position. The fall of shot could be very accurately observed, both in range and deflection; the courses and speeds of the enemy could be gauged accurately; the range could be found very accurately—height of machine being known; the usual smoke interference to range-finders in control-tops would be obviated; the enemy's disposition could be accurately noticed. From all this the ranges, courses, and speeds of the enemy, and the spotting corrections, could be sent by wireless to the ships throughout an engagement. For this purpose slow, steady machines, with a pilot, observer, and transmitter, and carrying plenty of fuel, would be essential. They would have motherships as a base, as in (c).

As far as (e) is concerned, fast silent machines could attack destroyers with explosives, using searchlights.

(d) seems to be the most useful and effective of these objects, though (a) and (c) might have good effect; (b) and (e) do not seem to promise much.—A Naval Officer.



The "Warship Timbuctoo" destroyed by fire (more or less) from an aeroplane at Hendon last Thursday night.

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The Night-Flying Exhibition at Hendon.

If anyone had said three years ago that it was possible to sit in a London suburb at ten o'clock at night and watch electrically-lighted aerial motors perform over one's head he would probably have been put down as a harmless, but very mad, lunatic. Yet a matter of some 10,000 Londoners had the experience last Thursday, and seemed to take it very much as a matter of course. They were hugely delighted, and they cheered more than I have ever heard an aerodrome crowd cheer, but they did not seem as astonished as they ought to have been.

The whole performance was beautifully organised and managed, and went off absolutely without a hitch, though the only fliers who had had any experience of landing in an illuminated ground were Mr. Grahame-White and Mr. Lewis Turner, and it must be remembered that such a landing is, if anything, worse than landing in the dark, just as driving a car along a street with lamps on one side is rather worse than driving along an open road in the dark.

Just before darkness came Lieut. Porte, R.N., on the 100-h.p. Anzani-Deperdussin, went up with a lady passenger, and while he was flying some of us noticed a large kite being sent up, apparently from the corner of Collindale Avenue, so we went out to investigate, and found to our surprise that the kite fliers were two employés of the "Daily Mail," who were going to have an illuminated advertisement of that enterprising publication on their own account, regardless of the fact that any aviator who happened to be forced to come round a little outside the aerodrome might see the illumination without having the faintest idea as to whereabouts the cord was and run into the latter, with certainly fatal results. Which shows the amount of real thought devoted to aviation by some of the people who talk most about it. One of the kite fliers seemed a trifle inclined to be obstinate, but the other was most reasonable, and had the kite hauled down, and it did not come down a moment too soon, for certainly not more than a minute after it got down to the level of the roofs of the sheds Lieut. Porte came into the aerodrome exactly across the point where the kite had been just before. On his previous circuit he had passed the kite at a distance of some few hundred yards, and he told me when he came down that he had not the faintest idea it was there.

As darkness came the crowd came with it, and Collindale Avenue was one seething mass of people and motor-cars, so that by the time it was quite dark, barring the magnificent moonlight, there must have been well over 10,000 people in the various enclosures.

The first pilot to come out was Mr. Lewis Turner on the old Grahame-White biplane with the Howard Wright tail. He went up to about 150 ft., and stopped there steadily for about six or seven laps of the aerodrome, most of the time playing tricks with his lights, so that sometimes the whole machine was illuminated, sometimes one only saw the lights along one wing, and every now and then it would disappear entirely, to flash out fully illuminated in a different part of the aerodrome. Altogether the effect was weird in the extreme.

Then Mr. Gates, having seen that everything in the aerodrome was in order, took the 80-h.p. Henry Farman up himself, accompanied by a searchlight of 200,000 candle-power, which did not search very much, owing to the fact that Mr. Gates could not find the switch. However, one saw the subsidiary signal light flickering in the sky at intervals, and the crowd was informed that Mr. Gates had signalled to Captain Playfair on the Judges' Box that "England expects every man to do his duty, and support aviation." Sundry other humorous messages were announced, including Mr. Gates' very credible statement, "By Jove! it is cold up here." As usual, Mr. Gates flew excellently, and landed with fine judgment.

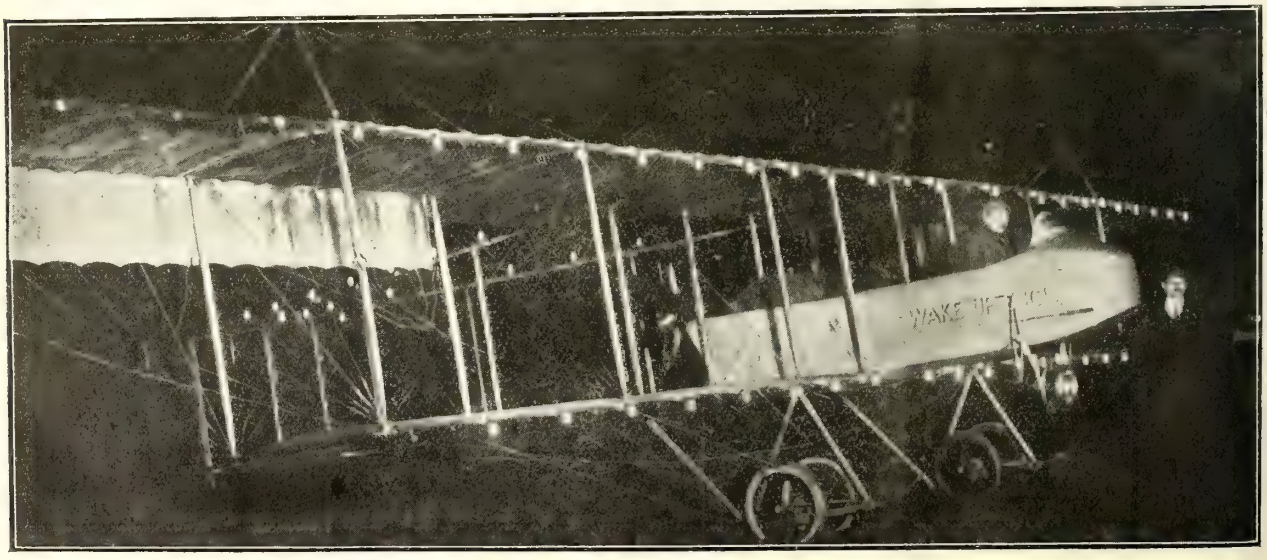
Thereafter Mr. Grahame-White took up one of the old biplanes, and flew right outside the aerodrome, with his usual generosity giving a free show to the people who would not pay to come inside. Mr. Pickles on the little Caudron made some short flights, but apparently something was wrong with the engine, for the machine did not lift well.

Then Mr Desoutter came out on the Blériot, carrying a Vandervell head-light on the chassis, and a couple of tail lights. He flew for quite a considerable time, and startled the crowd horribly the first time he came round by eerie shrieks from a Klaxon horn, which drowned even the sound of the Gnome. The effect of the three lights tearing round the aerodrome uttering horrible howls was, I think, actually the most startling thing of the whole performance.

Then Signor Nardini on the British-built 60-h.p. Anzani-Deperdussin made an excellent flight, with just a single light on the tail of his machine. This light was pointed backwards, and threw its beam into the smoke of the engine streaming behind, thus giving a very excellent imitation of a comet, so we had plenty of variety in effects.

After this Mr. Travers on the 70-h.p. Henry Farman, Mr. Turner on the box-kite, and Mr. Noel with Captain Tyrer as passenger on the 80-h.p. Farman, all turned out together with their machines fully illuminated all over, giving a sort of general impression that Earl's Court had broken loose and taken to aviation.

While they were up Captain Tyrer, who was armed with a rocket-firing pistol, proceeded to bombard a silhouette of a battleship erected in the middle of the ground, and very cleverly designed by the drawing office staff of the Grahame-White Co. With the searchlights playing on it, it looked quite realistic. After several shots, which fell wide, Capt. Tyrer got it fairly between the funnels, and the phantom warship obligingly caught light from stem to stern, disappearing in clouds of smoke and flame with flashes of internal explosions. Really the effect was remarkably fine. When Mr. Noel descended, evidently deceived as to direction by the various lights, he came



Mr. J. L. Travers on the Illuminated Farman at Hendon.

rather close to the railings and missed the poles at the front of the Committee enclosure with his wing tip by a matter of inches, but the landing itself was exceedingly good, and his flying of the fast 80-h.p. Farman right through was excellent.

Mr. Travers flew highest of all, reaching probably some seven or eight hundred feet, though it was very hard to judge.

All the lights on the machines were supplied by C. A. Vandervell and Co., of Worple Way, Acton, and worked magnificently. The brilliance of the head lights gave one a good idea of what properly-designed electric lighting could do, and the tiny lamps which outlined the planes themselves were highly effective. In addition to these there were three or four big searchlights at various points on the ground, and these also operated most efficiently, playing on the machines as they passed overhead, and making a most striking picture.

After the flying there was a display of fireworks, which, however, seemed very small beer compared with the illuminated machines. Mr. Grahame-White and Mr. Gates are to be heartily congratulated, not only on the brilliant idea of the night flying, but on the thoroughly sound organisation of the performance, and the excellent way it was carried out. It is to be repeated on November 5th, in honour of the late Mr. Guido Fawkes presumably, and, given fine weather, there should be a bigger "gate" than ever. The show demonstrated one thing most conclusively, namely, that there must be a considerable amount of interest in aviation in this country if something over ten thousand people can be induced to stand on damp grass for something like three hours on a freezing night like that of last Thursday. They got more than full value for their trouble, but the fact that they went there at all shows how the Grahame-White and Gates combination are really waking England up.

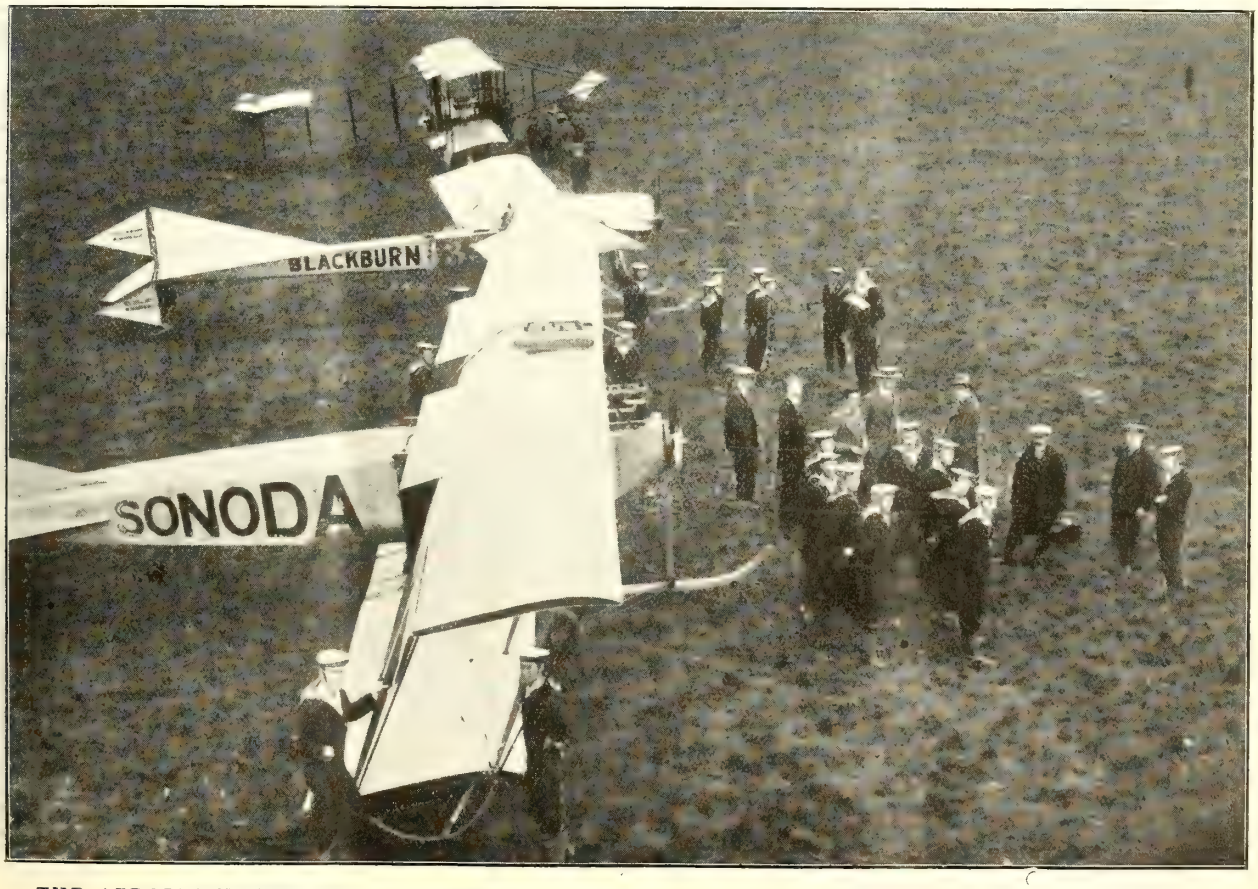
The Aeroplane Review at Hendon.

The weather was more than usually unkind on Saturday at Hendon, for a strong cold south-east wind and a dull gray sky made flying anything but pleasant, and all idea of competition flying had to be abandoned. Nevertheless, the large crowd which arrived had very good value, for there has never yet been an opportunity for people in this country to see so many and various machines on view at the same time.

When Major Carden, R.E., of the Royal Flying Corps, arrived, by order of Colonel Seely, Minister of State for War, to inspect the machines, there were twenty of them drawn up in line, these including two Deperdussins, a Flanders, a Bréguet, two Henry Farmans, two Blackburns, seven Blériots, two Grahame-White biplanes, a Handley Page, and two Caudrons, altogether a very pretty show. These were drawn into place by an assortment of Naval Volunteers, Territorials, and members of the Legion of Frontiersmen. The N.V.'s stood to attention quite nicely, while the inspecting officer passed them, but the Territorials were "all anyhow," and "Frontiersmen" were openly laughing and joking. If one must play at soldiers one might as well play the game properly, and even if the inspection was not one of military importance these "citizen soldiers" might have had sufficient gumption to endeavour to appear as soldierly as possible before an officer in the Regular Service.

Before, during, and after the inspection the crowd were entertained by an exhibition of artillery driving by a battery of Territorial artillery, the men and horses behaving quite nicely—at any rate, none of the men fell off—though the officers seemed a trifle vague as to what they had to do. The original idea was to use the said battery as ground-bait for the observer-passengers in the cross-country race, but as things turned out the men saw a good exhibition of flying instead of spending the afternoon in the lanes outside disguised as mushrooms or other agricultural produce calculated to deceive air-scouts.

Soon after the review of aeroplanes Mr. Hamel came out and rocketed off in his usual way, with his engine missing badly. If Mr. Hamel comes to grief it will be through some such carelessness as this, and not through turning his machine over when doing his big tricks. Thereafter he gave a very fine exhibition, though he might remember in future that it is not good form to pretend one is going to dive on to the top of another machine which is just getting off the ground. The



THE AEROPLANE REVIEW.—A Handley Page, a Black burn, and a Grahame-White at Hendon guarded by Naval Volunteers.

occupant of the box-kite is not necessarily aware that the particular monoplane which is apparently falling on him is piloted by the great Mr. Hamel, and, if he is so aware, he has no guarantee that the great Mr. Hamel has full control at the moment. Such conduct is not conducive to further visits by distinguished officer aviators to Hendon, and it is the aerial equivalent to the chauffeur's trick of driving straight at another car on the road and switching aside at the last moment. If Mr. Hamel would only give up some of his minor faults he would do much to ameliorate the feeling of exasperated affection he inspires in many of those who wish him well.

After some really wonderful banked turns on his own machine Mr. Hamel took out Mr. Hall's Blériot and flew out round the country, but, being strange to the machine, he played no tricks. Lieut. Spencer Grey, R.N., and Lieut. Parke, R.N.—strictly on leave, and not in any way officially, or in competition—took out the 60-h.p. British Deperdussin and a Grahame-White biplane respectively and did some short flights. Mr. Hamel went out again up to several thousands of feet. Mr. Noel on the 80-h.p. Henry Farman flew as admirably as usual—he increases his reputation as a flier with every trip he makes. Mr. Travers, who is now recognised as one of our best pilots, did well on the 70-h.p. Henry Farman. Finally, when it was nearly dark and almost everyone had gone, Mr. Hamel went up once more, for the pure love of flying, and made one of those beautiful flights which do more among those who know to establish his reputation as a flier than all his gallery tricks. Taking it all round, the day was a big success, in defiance of the weather.—C. G. G.

The New Chief Pilot.

Mr. F. Warren Merriam has now been officially appointed manager, chief pilot, and instructor to the British and Colonial Aeroplane Company's School at Brooklands. Mr. Merriam is well known as a steady and careful pilot, and the fact that he is a good instructor is proved by the fact that during the three weeks he has been in charge he has passed nine pupils for their certificates all without an accident.

Mr. Longstaffe's Accident.



Mr. J. L. Longstaffe.

It is reported from America that Mr. J. L. Longstaffe was killed while flying a Farman biplane at Hampstead, Long Island. Though details of the accident are lacking, the fact of Mr. Longstaffe's death is, it is feared, only too true.

John Lewis Longstaffe will be remembered as a pupil of the Blondeau-Hewlett School at Brooklands last year, and his certificate, No. 140, granted on September 26th, 1911, was taken on the Farman biplane built by M. Blondeau. Shortly after taking his certificate he entered for the Michelin Competition on a Green-engined Howard Wright machine, and did a good deal of practice flying; but shortly before the closing date for that competition he left for Paris, and it was understood that he was then on his way to Turkey, where some years previously he had held a post as one of the European officers engaged in organising the Turkish Gendarmerie.

He was born in London on March 25th, 1885, and was at one time an officer in one of the Dragoon regiments.



More of the Review at Hendon.—A Caudron, a Blériot, another Caudron, four more Blériots, and two Farmans, together with sundry Territorials.

Dopes and Doping.

BY A. J. A. WALLACE BARR.

The question of the most satisfactory means of treating the fabric coverings of the planes and fuselage of aeroplanes is one which has of late come greatly to the fore.

When the first "heavier than air" machines were constructed in this country the planes were covered with unproofed cotton. It was, however, soon discovered that to get the greatest efficiency out of the planes the fabric must be air-tight, and though, as in those days when machines were only out in the finest weather, rain and damp did not matter much, it was realised that it would eventually be necessary to make the planes waterproof.

The first attempt made at proofing fabrics was with rubber, and a similar fabric to that used for the manufacture of balloons, but of a lighter quality, was used. This was thought to answer all the requirements of the ideal wing covering, especially as it was possible to make all the joins easily and quickly by means of rubber solution. It was soon found that after a short time the varying atmospheric changes caused the fabric to sag, and that the oil from the motor decomposed the rubber proofing and the fabric became saturated with it. It was also noticed that the whole of the tail and rudder planes became sticky with the oil, and the dust thrown on to them by the slip-stream of the propeller adhered firmly, thus greatly increasing the weight and so necessitating the frequent re-covering of these parts.

A fabric proofed with celluloid was also tried and found to be in a great measure successful, as it was considerably lighter than rubber-proofed fabric The disadvantage of this proofing agent, however, was that a certain amount of oil is used in its preparation, and the fabric therefore sags when it comes in contact with oil thrown from the motor. Further, the highly inflammable nature of the celluloid is a great source of danger.

Many experiments were tried with various varnishes and paints, and it was found that shellac varnish slackened the fabric and made it very brittle, as also did a varnish made from casein, while white lead paint added too much to the weight. Last year, however, saw the introduction of a "dope" which quite superseded all others. This dope has for its base acetyl cellulose, which is more generally known as the base of non-flammable celluloid, discovered by Dr. A. Eichengrün, of Berlin, the well-known German chemist. Some idea of the importance of this production may be gathered from the fact that at a recent meeting of the world's leading chemists held at Washington the discovery by Dr. Eichengrün of acetyl cellulose and its products was described as the greatest discovery of the century.

Aeroplane constructors found that this dope provided just the article they desired, as it made the fabric water, oil and petrol proof, and quite impervious to atmospheric changes, and further the application of one coat tightened up the fabric and made it drum-like, but not too tight and hard, while the addition of two or three more coats provided a smooth, glossy surface which provided the minimum amount of skin-friction, with the additional advantage that it could be washed, thus removng all dirt and dust.

It should be pointed out that there is a considerable danger in tightening the fabric too much, as by so doing all the strands of the fabric are in tension and so nearer their breaking strain. This point has been realised by the German constructors, who refuse to use a dope which produces a very large tightening effect, and prefer one which keeps the fabric in its original condition and remains quite pliable. Another important point in favour of the use of Acetyl Cellulose Dopes was that they increased the tensile strength of the fabric by some 40 to 50 per cent.

In some dopes, however, when the tightening effect was gained by means of the solvents, and not by the use of a larger proportion of Acetyl Cellulose, it was found that the fabric was made hard and stiff, and after a few months it became very brittle. Inquiries proved that certain of the liquid ingredients in these dopes had a deleterious effect on the fabric. When these facts became known, builders began to realise that while it was important for the fabric to be tight, it was essential that it should remain quite pliable, and their opinion was backed up by some of the Continental War Offices, who, as a result of careful experiments, have forbidden the use of dopes containing the deleterious solvents and ingredients.

At first doping was looked upon by constructors as a necessary evil, but of late more attention has been given to this branch of construction, as it is now realised that the finish of the dope makes or spoils the appearance of the machine, and thus a dope made from imperfect chemicals which stained the fabric and made it patchy was not the ideal covering for it.

This being the case, a few words on how to obtain the best results may prove useful. To start with, experiments have proved that the most suitable fabric is without doubt unbleached linen. The linen should be carefully examined, as some qualities contain many small knots, which pick up the dope and make it difficult to obtain a smooth surface.

For the dope to be really successful, it is essential that the first coat should thoroughly impregnate the fabric and thus proof both sides, then two or three more coats should be added in order to give a highly glossy surface. Continental builders often give as many as eight or nine very thin coats of dope to their machines, and when one remembers the number of coats of varnish put on carriages or motor-cars, costing much less than aeroplanes, the slight extra cost, compared with the great additional advantages in strength and finish gained on an expensive machine like an aeroplane will be appreciated. Only the other day an expert on this subject informed me that to get a perfect result the increase of weight of doped fabric over undoped should be 100 per cent.—i.e., about seven thin coats.

In applying the dope great care should be taken to follow the grain of the fabric, and always to put the dope on in one direction. As far as possible doping should always be done in a fairly warm room, and never in a damp atmosphere, as, owing to the hygroscopic nature of the solvents, doping done under adverse conditions dries opaque and dull. Of course at times doping under these conditions is unavoidable, and if an imperfect result is obtained, a special polishing fluid can be obtained from the leading British dope manufacturers to remedy this.

Just now there seems to be an indication that constructors want dopes of various colours for use on their machines. To obtain the best result in these cases, the coloured dope should be put on as a fourth coat, not before. By this means a perfectly smooth and even colour is obtained. Having regard to the fact that almost all aeroplanes are now designed for naval and military work, it seems advisable that they should be coloured as far as possible to harmonise with their surroundings. Thus, for military work a khaki brown dope makes a machine very difficult to see at a distance, though it remains to be proved by experiments whether this colour is better than a dark green. For naval hydro-aeroplanes there is no doubt that the dark grey used for the battleships, etc., is the ideal colour. Of course, for private machines any desired colour can be used, and quite recently I have seen machines beautifully finished off in blue, brown and green. Of course, when the machine is in the air, the colour is immaterial, as, owing to the fact that it cuts off the rays of light, it always appears black against the sky, and if it is desired to make a machine invisible in the air it would be necessary to cover the planes with some transparent material such as pure "Cellon" non-flammable celluloid sheets. This material has a tensile strength greater than that of fabric and is very little heavier. This form of wing construction would prove a great advantage, as the whole interior of the wings would be visible and any slight breakage readily detected.

While on the subject of military machines, it occurs to me that, having regard to the recent fatal accidents, caused by the fabric on the lower surface of a plane becoming cut and the pressure forcing the whole of the fabric off, in time of war there will be a considerable risk of a bullet fracturing the fabric and causing a similar accident. It seems, therefore, that, at any rate for machines where the loading per square foot exceeds a certain amount, a fabric of drawn steel wire should be used. This would be quite untearable under all conditions and would have a remarkable strength.

A special dope would have to be employed to make this fabric airproof and to prevent oxidisation, and I happen to know that experiments with this end in view have already been successfully carried out, and application for patents made, and that this fabric will shortly be placed on the market. It seems quite possible that the introduction of this fabric will revolutionise wing construction, as it will be impossible for any sagging to take place after the fabric is applied, and the increase of strength will be of inestimable value.

In conclusion it should be noted that fabrics doped with Aceytl Cellulose Dopes can be joined and patched by means of Acetone as easily as rubber-proofed fabric can be treated with rubber solution.

Head Protection.

Now that manœuvres and the holiday season are over, and both soldiers and business men are settling down to their regular work, there is certain to be a considerable growth of activity at the various aviation schools, for in the first place numbers of officers who have had the utility of aeroplanes impressed on them recently are certain to take up flying, and the greater interest which the general public are now taking in aviation will certainy induce many sportsmen to take up flying. This will naturally mean considerable demand for the various articles necessary to the outfit of an aviator, and to those who are taking up flying one can confidently recommend anything sold by the firm of Dunhills, who are already noted among motorists for the excellent quality of their goods. Messrs. Dunhill have made a speciality of wind-proof and water-proof aviation suits, which are used by a number of well-known aviators. They also supply excellent aviation helmets, and, now that helmets are used by so many first-class fliers, there is no need for the novice to imagine that he is going to be regarded as a coward by others simply because he takes a sensible precaution to protect his head. More men are killed by moral cowardice than by physical, and it is a weak mind that would allow itself to be chaffed into giving up anything which would increase the safety of flying simply because it happened to be regarded as a sign of extreme care.

The Dunhill Helmets may be seen either at 2, Conduit Street, W., or 359, Euston Road, N.W., and it is well worth the while of any aviator to pay the firm a visit.

Brown Helmets.

Brown Bros., Ltd., of Newman-street, Oxford-street, the well-known factors of everything connected with cycles and cars, have for some time been paying considerable attention to aviation, and now supply most of the material and accessories which may be needed by aeroplane builders and aviators. The



recent agitation in favour of wearing a helmet when flying has undoubtedly had due effect on our aviators, and Brown Bros., Ltd., wish to draw attention to the fact that they have sold such helmets for a considerable period. The accompanying illustrations show two types kept in stock by the firm.

The Warren Helmet.

It is some time since Mr. Warren, of Hendon, first produced the flying helmet which bears his name and demonstrated its efficacy by letting his fellow-mechanics thump him on the head with fitting hammers and such weapons. Also it will be remembered that the Warren helmet undoubtedly saved Mr. Ewen's life when he took a header clean through the upper plane of his little Caudron biplane. It is, therefore, satisfactory to hear that this helmet is now being put on the market as a regular thing by Aeros Ltd., 39, St. James Street, and made by one of the best-known headgear manufacturers in this country. The basic principle of this helmet is that the top is built of spring steel strips which are securely fixed to a circular band running round the forehead, while the aviator's head fits into an adjustable inner leather cap which leaves a space between the crown of his head and the top of the helmet, with the result that if he is struck a blow on the skull the steel bands give sufficiently to absorb the shock without allowing any hard substance to touch the skull, all the shock being taken up in the space between the leather cap and the steel bands. The helmet is by no means unsightly, and when properly made can be turned out as neatly and as lightly as any ordinary military helmet. It should be recollected that these helmets are equally useful to polo players and motor cycle and car racing men. Aeros Ltd. make a great point of the fact that the Warren helmet will not blow off under any circumstances, and that the method of fitting the padding round the edge makes it extremely comfortable to wear.

Mr. Harrison's Trip.

The writer has long been of the opinion that Mr. Eric Harrison, the clever young Australian pilot, would do a really fine performance as soon as he got the opportunity. The opportunity came recently when Mr. Harrison flew from Salisbury Plain to Brooklands and back in the day with a Bulgarian officer as passenger on a Bristol monoplane. The double distance is approximately 140 miles, and most of it is over country which is far from good. Mr. Harrison has already done the trip more than once on a box-kite, but never out and home in the day.



Mr. Eric Harrison and his Bulgarian passenger.

Tempora Mutantur.

Mr. Douglas Thorburn, whose aviation notes in the "Financial World" are at once among the most accurate and the most humorous literature on the subject, has made a remarkable discovery. He writes in his last issue :—

"An exceptionally striking instance (of change in ideas) is afforded by the columns of the 'Times.' In its issue of January 24th, 1906, a letter by Mr. A. V. Roe is published which refers to the 24½ miles motor-driven flight of the Wright brothers. He mentions that he had made some very successful steering glides with 3 ft. long dart models fitted with combined vertical and lateral rudders, and he proposed to try for the £2,000 Deutsch-Archdeacon prize of the French Aero Club, and the prize offered by Sir David Salomons, Bart., for the first successful mechanically-driven aeroplane built in this country on the Wright's system. He saw no reason why a motor-driven aeroplane should not be gliding over England by the middle of that summer. The interesting part of the matter is the comment added by the editor of the 'Times,' which is as follows :—'Whilst giving that encouragement to new enterprise denoted by the admission of what is patently a free advertisement to our literary columns, it is not to be supposed that we in any way adopt the writer's estimate of his undertaking, being of the opinion, indeed, that all attempts at artificial aviation on the basis he describes are not only dangerous to human life, but foredoomed to failure from an engineering standpoint.'"—Times change, and the "Times" changes with them.

Continental Notes.

M. Roland Garros arrived at Issy-les-Moulineaux in the early morning of September 25th with the intention of making an attempt on the new height record. He waited several hours for the delegate of the Aero Club de France, but in vain. This sort of thing has happened before, and certainly does not reflect credit on the world's premier Aero Club.

M. Trescarte is making a series of excellent flights at Oporto, in Portugal, on a Maurice Farman biplane. Even the lotus-eating Portuguese rouse themselves to unwonted enthusiasm at the sight. It is rumoured that aviation bids fair to become a lucrative business in the new republic.

At Courcy on September 21st M. Bielovucic made a long flight in a high wind on a Hanriot monoplane fitted with a Rossel Peugeot engine. This motor ran perfectly, and promises well.

In the early morning of September 21st M. Cavelier started at Calais on an attempt on the Coupe Pommery. From some unexplained cause he was forced to descend before he had left the aerodrome. Seeing that the crowd were all over the field and that if he ran on, a peculiarly mutilating accident was likely to occur, he came down sharply, and deliberately overturned his monoplane, thus effectually disposing of his immediate chances for the cup.

An aviation week began at Johannisthal on September 29th with thirty-eight entrants, among them being such names as Thelen, Hirth, Hans Grade, Lindpaintner, Laitsch, Lieut. Kruger, Buchner, and Mlle. Beese and the Austrian Bier.

Guillaux left Calais on September 25th on a 70-h.p. Gnome-engined Clément-Bayard monoplane, with the intention of competing for the Coupe Pommery. He started at 5.55 a.m. At 8 a.m. he landed near Amiens. Leaving again at 11 a.m., he landed finally at Issy-les-Moulineaux just before noon. He relinquished his attempt owing to the high wind.

The following day M. Janoir, on a Gnome-engined Deperdussin monoplane, left Issy-les-Moulineaux with the same object in view. He landed brusquely at Sin-le-Noble, near Douai, breaking a wing. So ended another attempt.

Abramovitch, who had so much trouble in flying from Berlin to St. Petersburg, owing to the customary churlishness of the native German, has now broken the duration record for a flight with four passengers. He and four friends on a Wright biplane flew for forty-five minutes near St. Petersburg.

It is proposed to erect a monument in memory of Hubert Latham on the high ground at Sangatte, near the Channel Tunnel works. No finer site could be chosen for the posthumous honouring of the gallant dead.

The Ligue Nationale Aerienne has at its disposal a prize of 5,000 francs (£200) to be granted to the first aviator on a French-built aeroplane who flies the greatest number of times round Paris in one day. The circuit is Juvisy, Vincennes, Le Bourget, Sartrouville-Montessar, Buc, and back to Juvisy. On September 28th M. Pierre Daucourt, flying a 50-h.p. Gnome-engined Borel monoplane, left Chateaufort at 5.45 a.m., and flew seven times round the circuit, finishing at 6.22 p.m., thus covering a distance of 420 miles in the course of the day.

A hydro-aeroplane race takes place on October 13th, 14th, and 15th, 1912, between Paris and Rouen. Several entries have been received from such firms as R.E.P., Borel, and Deperdussin.

The Death of M. Charles Voisin.

It is announced that on September 28th M. Charles Voisin was killed at Belleville-sur-Saone owing to his car overturning at a corner.

His name with that of his brother Gabriel is inseparably bound up with the history of aviation. The two were the first to found a business of which the construction of flying machines was the basis. They had a commendable confidence in the future of the new science, and it is safe to say that had it not been for the Voisins aviation in Europe would not now be so advanced.

They built and designed the biplanes on which Farman and Delagrange made the first flights in Europe worthy of serious notice. Their designs owed little to any man, and they in no way infringed the patents of the Wright brothers, though the maintenance of this principle made the materialised product of their brain unwieldy and cumbersome.

Before Farman and Delagrange made the name of Voisin, that firm had constructed numerous aeroplanes, mostly of the biplane type for various experimenters, gifted and otherwise. Santos Dumont and Blériot both were clients of the brothers. Ferber gave them the benefit of his brain, and finally flew a production of theirs. Their early principles of construction are common practice of to-day.

Charles Voisin was born at Lyon on July 12th, 1882. He joined his brother in 1904 as partner in an aviation construction company partly financed by M. Deutsch-de-la-Meurthe. In 1906 he himself piloted Delagrange I. on several occasions, but never with any enthusiasm.

In 1911 he left his brother and became manager of Garros, Audemars, and Barrier after the deat hof Moisant, and the disintegration of the Moisant company.

Concerning the Tandem Blériot.

Mr. Chéreau, the manager for M. Blériot in Great Britain, has sent copies of two letters received from M. Blériot concerning the late Mr. Astley's accident with Miss Davies' tandem Blériot near Lille recently.

The first, written on September 20th, says:—"Apropos the heavy landing at Ronchin of Miss Davies' tandem, the papers say that a breakage of the footboard was the cause. We have no news of Miss Davies nor of Mr. Astley, so do not know exactly what happened.

"Nevertheless, as the War Office at present possesses a machine of this type, we wish to remind you that Miss Davies' machine was the first built of this pattern. Since then we have simplified the arrangement of the controls, done away with the cloche, strengthened and braced above the footboard, the foot-plate and the warping shaft, as well as below."

The second letter, dated September 24th, reads:—"With reference to the accident to Miss Davies' tandem, we have to inform you of the following facts. On starting after a landing in the Bonn-Liège flight, the machine skimmed over a field of corn and picked up so many sheaves in the lower pylon and crossed tail skid that lumps of straw heavy enough to make the machine fly tail down stuck to it. It is extraordinary that jambing of the warping control did not take place, but it is probable that a 'stiffness' resulted, and that abnormal strains had to be endured by the working parts of the control and by reaction by the footboards. This was not finally relieved till the arrival at the next landing-place, as Mr. Astley did not come down to find out what caused the stiffness. Besides, we have just received this morning the machine after its smash, and it does not appear to have been as bad as was reported.

"As to the knots in the footboard, you can rest assured that there were none. A board with a knot would never have been fitted."

The assumption that the breakage was caused by the strains due to working the warp when clogged with straw seems quite reasonable, for Mr Astley himself said he found the warp very stiff. However, other points remain to be cleared up, and it is to be hoped that they will be settled to the mutual satisfaction of the maker of the machine and its sporting owner.

A Good Caudron Performance.

Mr. Sydney Pickles did an exceptionally fine flight on Saturday morning last on the 60-h.p. Anzani Caudron. Though he had never made a cross-country flight before, Mr. Pickles started from Hendon for Farnborough in quite a strong wind. Allowing too much for drift, he found himself over unknown country, and on coming down discovered that he had got to Leatherhead. There he persuaded a local farmer to start his engine up, and arrived at Farnborough without further trouble, having taken only fifty minutes to cover the 45 miles, including the stop. The performance shows Mr. Pickles and the Caudron both to be considerably above the average. The machine is to be tested for the Army this week, and, judging from the performances of the Caudrons in the possession of the French Army, it should be a valuable acquisition to the Flying Corps.

An Aviator in Afghanistan.

A letter received from Kabul, Afghanistan and written on August 15th, has arrived from Mr. Wilfrid Dolphin, who will be remembered as a very capable pilot of the old Hanriot monoplane at Brooklands last year. Mr. Dolphin went out to India for one of the big motor concerns there, and was at the time of writing in Kabul, acting as adviser to the Government of the Amir of Afghanistan concerning the organising of heavy motor transport and the construction of roads and bridges to accommodate it. The country is so rugged and mountainous that it is almost impossible to construct railways, so it will probably be cheaper all round to build thoroughly adequate roads and run motors on them. Mr. Dolphin has already got several 32-h.p. Albion 3-ton waggons out with him.

Mr. Dolphin says that there is nothing whatever doing in the way of aviation in Afghanistan, most of the country being on end and scarcely suitable for aerodromes; besides which, if one landed anywhere away from the capital, one would be fairly sure of being wiped out by the local population. Mr. Dolphin expects to be home next year.

The Week's Work.

MONDAY, September 23rd.

R.F.C. Central Flying School.—Lieut.-Col. Cook, R.A., Capts. Alston and Becke each once on Avro 404. Major Higgins, Capt. Salmond and Lieuts. Hartree and Abercromby each once on Avro 406. Major Trenchard twice and Lieuts. Longmore, R.N., Cholmondeley and Waldron each once on Maurice Farman 403.

Hendon.—Grahame-White School out at 6.30 a.m. under Mr. Noel. Major Maddocks and Mr. Clark rolling, Messrs. Wilson and Fuller straights on No. 7 biplane. In evening, Capt. Kunhardt, Lieut. Allen and Mr. Wilson straights on No. 7, and Mr. Hoelscher circuits on same.

At Aircraft Company, M. Verrier testing Maurice Farman intended for Army, did several pretty flights with passenger.

At Blackburn School, Messrs. Buss, Spink, Glew, and Dr. Christie all out at 6.30 a.m. rolling until 8.35, and again from 5.50 to 6.30 p.m.

At Deperdussin School, Capt. MacDonell practising straights on taxi No. 2. Capt. Mapplebeck ready to go on to same machine. Lieuts. Tucker, Hawker, Bourke, Rowley, and Hooper good work on Dep. No. 3. Mr. Ware ready for brevet on Dep. No. 4. Messrs. Spratt, Andrews and Baird all doing well on Dep. 3. Messrs. Phelps and Whitehouse practising rolling on taxi No. 1.

At the Bleriot School, M. Gratien one of first out in morning on L.B.1, but was troubled by engine misfiring. Mr. Reilly also had the same machine out rolling. In evening lot of work done. Messrs. Welburn and Clappen straights on L.B.2, and Messrs. Reilly and Gratien rolling on taxi. M. Teulade had brevet machine out.

At W. H. Ewen School, pupils out at 6 a.m. After test flight by Mr. Sydney Pickles, Mr. J. H. James flew two circuits on 35-h.p. Coudron, making nice landing. Later same pupil good flight at 200 ft. Mr. Sydney Pickles then took Mr. Lyley for passenger flight of three circuits on 35-h.p. Caudron, immediately after started out for cross-country flight of forty-five minutes, notwithstanding strong wind. Reaching 3,000 ft., he passed over Elstree and surrounding country. M. Baumann hard at work with pupils on monoplanes Nos. 1 and 2. Capt. Chamier and Lieut. Eric Conran making straights and half-circuits. In evening, Lieut. Eric Conran doing good flights and Mr. L. Russell hopping on No. 1 monoplane. Mr. Sydney Pickles made test flight on 35-h.p. Caudron, after which he handed over to Messrs. Apcar and J. H. James, who each put in flights before dark.

Brooklands.—At Vickers School.—In evening Mr. Knight first out on Vickers 5, flying good circuits at over 500 ft. The English engine in this machine has proved a thorough success. Later Mr. Barnwell was flying figures of 8, making nicely banked turns. He promises to be a very fine pilot indeed.

At Sopwith School. In evening Mr. Perry out on school Farman giving instruction to Capt. Salmon.

At Bristol School, Mr. Merriam found it too bumpy for pupils. In evening, Mr. Merriam testing, and finding it rather bad, sent pupils for straights. Capts. MacDonell and Miller, Lieuts. Hanlan, Hope and Mr. Payze out. Mr. Merriam behind Lieut. Loultcheff for straights. Mr. Bendall flying machine to shed.

Windermere.—Mr. Adams took " Sea Bird " tractor biplane out with passengers, flying strongly. Mr. Murray took Mr. Gnosspelius' hydro-monoplane several short trips.

TUESDAY, September 24th.

R.F.C. Central Flying School.—Lieut. Longmore, R.N., with Capt. Walsh on Short 402, and Capt Risk and Lieut. Young each once and Lieut. Shepherd three times on same machine. Major Higgins and Lieut. Abercromby each three times, Capt. Becke twice, and Capt. Salmond once on Avro 404. Capt. Fulton on Avro 406 several flights. Major Trenchard and Lieuts. Waldron and Cholmondelay each twice on Maurice Farman 403, and Lieut. Longmore, R.N., once alone and once with Air Mechanic Yabsley.

Farnborough.—Lieut. Longcroft several flights on biplane "204," Lieut. James out on biplane "205"; both out again in the evening. (Machines "201" to "206" are the "B.E.'s" built in the Factory.—Ed.)

Hendon.—At Grahame-White School, in evening, Capt. Kunhardt and Mr. Wilson got in half an hour's good practice at straights.

At Blackburn School, Messrs. Spink, Glew, and Buss rolling from 5.50 p.m. until dark.

At Deperdussin School, Capt. MacDonell put in some straights on taxi No. 2. Lieuts. Tucker, Bourke and Rowley also straights on Dep. No. 3. Wind stopped further work.

At Bleriot School, no practice in early morning, but in evening M. Gandillon and M. Gratien out, former doing straights on L.B.2, whilst M. Gratien rolling.

At W. H. Ewen School, nothing in morning. In the evening M. Baumann had Lieut. Eric Conran out on monoplane No. 1, making good progress in straight flights.

Lark Hill (Bristol School).—M. Jullerot out at 4 p.m. on side-by-side monoplae, afterwards giving tuition to Mr. Lywood. Out again on biplane with Lieuts. Sabri, Fezel, Aziz, and Sofet. Mr. Pizey with "Capt." Penfold on side-by-side monoplane, also with Prince Cantacuzène, Lieuts. Hall and Fezel. Mr. Arthur with Messrs. Lucina, Parker and Lywood.

Brooklands.—At Vickers School. In early morning Mr. Knight first tested air on No. 5, and finding conditions good sent Mr. Geere for second half of his brevet on same machine. Mr. Geere made an excellent flight with banked turns of small radius, doing tests in remarkably short time; his performance spoke very highly for tuition given at this school. Afterwards Capt. H. F. Wood, chief of Vickers Aviation Department, and Mr. Knight, flew many circuits on school Farman. Mr. Knight also put in straight flights on No. 6, the side-by-side two-seater, handling machine very well for first time.

At Hanriot's, in morning, Mr. Sippe gave quite an exhibition flight on the single-seater. Later Mr. Sabelli flew for some time in first-class style.

At Sopwith School, Mr. Hedley out early in morning on school Farman giving instruction to Capt. Salmon and Major Cameron for over two hours.

At Bristol School, Mr. Merriam testing, Mr. Bendall following on another machine, then Capt. MacDonell two circuits after taking his certificate very well. Lieuts. Hope, Hanlan, Capt. Miller, Mr. Payze and Capt. Gibbon all flying alone. Mr. Bendall up with Lieut. Loultcheff and Mr. Merriam with same pupil and Capt. Gibbon.

Dover.—Mr. Slack, the I.C.S. pilot, arrived on weather-beaten 50-h.p. Blériot in very strong east wind.

Windermere.—Mr. Murray again out several times with Mr. Gnosspelius' machine, but did not seem to be going well. Then Mr. Gnosspelius took wheel, and after a short "straight" was thrown out into the lake. Pilot unhurt, but machine seriously damaged.

WEDNESDAY, September 25th.

R.F.C. Central Flying School.—Capts. Becke, Salmond and Alston each twice on Avro 406, and Major Higgins and Lieut. Abercromby each once on same. Lieut. Longmore, R.N., once alone and once with Lieut. Martyn; Capt. Risk three times, Lieut. Shepherd twice, and Major Trenchard and Lieuts. Anderson and Young each once alone on Short 402.

Farnborough.—Early, Lieut. Longcroft made fine flight of 45 mins. on "204." Lieut. James out on "205," flying very well. In evening Major Burke several flights on "204," Capt. Reynolds out on Henry Farman "208."

Hendon.—Grahame-White School opened at 6 a.m. Capt. Halahan, Messrs. Wilson and Clark, Capt. Kunhardt, and Mr. Holscher making good straights on No. 7 biplane under Instructor Noel. Then Mr. Roupell out on B.2 monoplane doing straights. Mr. Fowler out on same machine, first rolling, afterwards making good straights. Messrs. Wilson and Lieut. Allen finished morning's school work with good straights on No. 7 biplane under instruction of Mr. Blackburn.

At Aircraft Company, M. Verrier Flying Maurice Farman round Edgware and surrounding country.

At Blackburn School, rolling practice by Messrs. Buss, Spink, and Glew, good progress shown.

At W. H. Ewen School pupils out at 6 a.m., but too much wind for school solo work. Mr. Sydney Pickles out on 35-h.p. Caudron, then made two magnificent flights with 60-h.p. two-seater Caudron, circling surrounding country at 2,000 ft., from which height he finished with very fine glide. In evening Mr. Sydney Pickles out on 60-h.p. Caudron, fine exhibition in spite of strong wind.

Brooklands.—At Vickers School, in morning, Mr. Knight first out, instructing Capt. Stott on school Farman for nearly an hour. Lieut. Joubert de la Ferté (new pupil) rolling for first time on "No. 2," and had the bad luck to damage landing chassis.

At Sopwith School. In morning Mr. Hedley hard at work with pupils on school Farman. Later Mr. Hawker flew good circuits on same machine at 300 feet.

At Hanriot's, M. Ducrocq out in morning on racing Farman, flying for over an hour. New Rossel-Peugeot motor came well through test, showing economy of oil and petrol.

At Bristol School, 5.45 a.m., Mr. Merriam testing, then Lieut. Hanlan doing figures of 8; also Lieut. Hope, who afterwards went for his ticket, flying very high and landing excellently. Then Lieut. Hanlan for his certificate also, flying steadily and landing well. Mr. Bendall took up Mr. Payze to show him where to do his first circuit, which he did very well. Mr. Merriam giving Capt. Miller lessons on right-hand turns, etc., then latter doing figures of 8. Captain Gibbon straights, also Lieut. Loultcheff, who made his first straights nicely. Mr. "Darracq" out alone. Mr. Bendall finishing work with a neat glide to sheds. In evening Mr. Merriam testing air and found it terribly gusty.

Dover.—Mr. Slack started for Ashford about 5.30 p.m. in bad wind, but at good altitude flew steadily.

Lark Hill (Bristol School).—Mr. Harrison in evening with Messrs. Lywood, England, Penfold, and Lieut. Fethe. Then in two-seater monoplane with prospective pupil. Mr. Pizey on side-by-side monoplane with Prince Cantacuzène, Lieuts. Hall, Aziz and Lucina, and then on biplane with Lieuts. Aziz and Parker. M. Jullerot with Lieut. Fezel, reaching 1,200 feet on monoplane, then taking Lieuts. Fezel, Sabri, Fethe on biplane. Mr. Busteed on monoplane and Mr. Geoffrey England giving tuition to Mr. Lucina on biplane, and Lieut. Sofet on side-by-side monoplane.

Windermere.—Well-informed (?) local resident describing waterplane to visitors:—"The float is to get off the water with. Of course, the airyplane does not carry that with it in the air. But it has to come back to where it left it and pick it up. That is one of the chief drawbacks of airyplanes at present. We are experimenting to improve on that, and if we don't someone else is sure to soon." !!!

Lady Visitor: "What do they call the things with the oil in?" Aviator: "The petrol tanks do you mean?" L.V.: "Yes, of course, I knew that. How silly of me to forget. But why do you have seven of them? Is it in case the air bursts two or three?" Aviator: "Those are the engine cylinders. There is only one petrol tank on this machine." L..V: "Only one! And what do you do when that bursts? It must be very dangerous!"

Local Humorist (watching passenger take his seat): "There's no flies on us. At Windermere we are on the flies." (Much applause.)

THURSDAY, September 26th.

R.F.C. Central Flying School.—Lieuts. Waldron and Young each once on Short 402.

Farnborough.—Early Capt. Darbyshire out on "205," Lieut. Longcroft with passenger flew to Bordon and paid a visit to his regiment. During afternoon M. Verrier flew over from Hendon on new Maurice Farman and made several circuits before landing. In evening Major Burke and Lieut. Longcroft each long flights on "204," M. Verrier out on Maurice Farman.

Hendon.—Grahame-White School opened at 6 a.m. Calm weather. Mr. Wilson, Lieut. Small, Major Maddocks, Messrs. Clark and Hoelscher and Capt. Kunhardt attended, all making straights on No. 7 biplane.

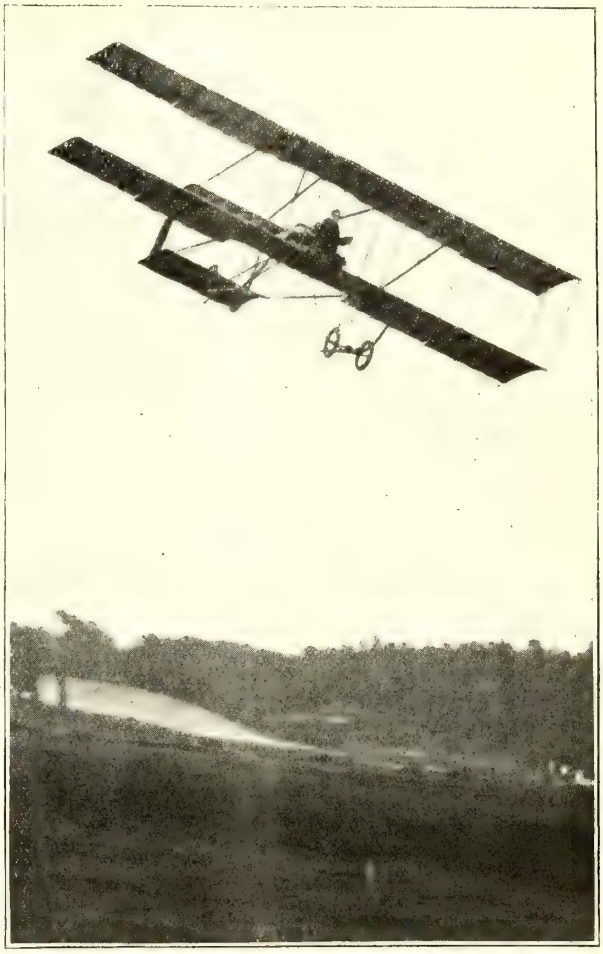
At Aircraft Company, M. Verrier left Hendon at 3.15 p.m. for Farnborough on Maurice Farman, carrying mechanic as passenger. He reached the Royal Aircraft Factory in 35 mins., despite 20 mile-an-hour side wind. Later he passed the necessary tests in excellent style, and handed machine over to the authorities. [Presumably this is the same machine flown to Upavon by Lieut. Longmore, R.N., on Friday.—Ed.]

At Blackburn School, pupils again out at 6.30 a.m., putting in good practice until 7.45. Messrs. Buss and Spink each making hops across aerodrome.

At Deperdussin School, Capt. Mapplebeck, Lieut. Whitehouse, and Mr. Phelps good progress on taxi No. 1. Mr. Ware and Lieut. Tucker excellent flights on Dep. No. 4. Mr. Brock circuits on racer. Fine flight in dusk by Lieut. Porte, R.N., on 100-h.p. Anzani two-seater with lady passenger.

At Bleriot School, Messrs. Gandillon and Gratien out in morning, M. Gandillon straights on L.B.2 and M. Gratien on L.B.1.

At W. H. Ewen School pupils out 6 a.m. Lieut. Eric Conran making good progress, landing nicely from 30 ft. on monoplane No. 1. Mr. H. James putting in good flights on monoplane No. 2. Mr. Sydney Pickles on 35-h.p. Caudron, handed machine over to Capt. Chamier, who made four confident flights. Mr. Sydney Pickles then took out 60-h.p. two-seater Caudron, rose to 5,000 ft. and circled surrounding country. From this height after 35 mins. he did a beautifully-judged glide.



Mr. F. W. Merriam "banking the box-kite"—a popular pastime at Brooklands.

Mr. Raynham arrived on Flanders monoplane from Brooklands, making beautiful landing in nasty wind.

Illuminated flying at night a great success. Reported elsewhere.

Brooklands.—At Vickers School. In morning Capt. H. F. Wood out on school Farman for number of flights and afterwards took up a lady passenger. Mr. Macdonald was out on Vickers 5, flying well for some time, followed by Mr. Knight and Mr. Barnwell. Lieut. Joubert de la Ferté rolling on "No. 5," but stood the machine on her head, smashing the propeller. As he already holds a biplane certificate, this shows need for training on faster machines before a pilot can be called a flier.

At Sopwith School, Mr. Hedley out in morning for two and a half hours giving instruction to pupils—Capt. Salmon and Major Cameron on school Farman.

At Hanriot's, Mr. Sippe and Mr. Sabelli out in turn on single-seater giving their usual exhibition of first class flying.

At Bristol School, 6 a.m., Mr. Merriam first trying conditions. Capts. Miller and Gibbon, Lieut. Loultcheff, Mr. Payze all doing straights. Mr. Bendall alone, then up with Lieut. Ali, Mr. Merriam afterwards taking up same pupil. In evening, Mr. Merriam testing, finding it fairly bad. Mr. Bendall following, taking Lieut. Pretyman. Mr. Merriam up trying an overhauled machine.

Lark Hill (Bristol School).—In afternoon Mr. Pizey took Lieut. Fethe on monoplane, M. Jullerot took Lieut. Aziz; Mr. Busteed out alone, but wind prevented further work.

FRIDAY, September 27th.

R.F.C. Central Flying School.—Lieut. Longmore, R.N., with Lieut. Shepherd, arrived on new Maurice Farman from Farnborough in evening in strong gale.

Farnborough.—Early Lieut. Longcroft with Lieut. James as passenger flew to Chatham on biplane "204." In evening Lieut. Longmore, R.N., several flights on Maurice Farman. Mr. de Havilland out testing new "B.E.2."

Hendon.—Grahame-White School opened at 6 a.m. Weather calm. Messrs. Wilson, Clark, Wynne, Fuller, Capt. Kunhardt, Major Maddocks, and Lieut. Small attended, all doing straights on No. 7 biplane.

At Deperdussin School, Mr. Phelps and Lieut. Brock rolling on taxi No. 1. Lieut. Tucker and Mr. Spratt very good flights on Dep. No. 4. Mr. Brock two circuits on same machine.

At Bleriot School, M. Gratien out early on taxi.

At W. H. Ewen School, Mr. Pickles out with pupils on 35-h.p. Caudron at 6 a.m. After flight on 60-h.p. two-seater, up again giving Mr. J. H. James passenger flight M. Baumann out with school monoplanes. Lieut. Eric Conran getting in excellent work on No. 1 monoplane. Capt. Chamier and Mr. H. James making good flights on monoplane No. 2, continuing practice till wind rose.

Brooklands.—At Sopwith School, in morning, Mr. Hedley first out alone on school Farman, afterwards with Capt. Salmon. Machine kept busy for over an hour carrying passengers.

At Vickers School, Mr. Knight first testing the air on Vickers 2, afterwards handing machine over to Lieut. Joubert de la Ferté, who flew promising straights, and will eventually make a good flier.

At Bristol School, 6 a.m., Mr. Merriam testing. Capt. Miller alone. Mr Bendall testing another biplane, afterwards taking Capt. Boger for circuits. Capt. Gibbon and Lieuts. Loultcheff straights. Capt. Miller then for his brevet in very good style. Capt. Boger, Mr. Payze, and Mr. "Darracq" alone. Mr. Merriam with Lieut. Pretyman.

Windermere.—Mr. Adams out with "Water Hen," found repairs satisfactory. Too much wind for pupils.

SATURDAY, September 28th.

Farnborough—Lieut. Longcroft and passenger returned from Chatham on "204."

Hendon.—At Bleriot School, Mr. Hamel doing wonderful performances in afternoon in high wind, first on his own machine and then took out Mr. Hall's for test, which showed machine to be in excellent trim.

At Deperdussin School, Mr Phelps and Lieut. Brock put in practice on Taxi No. 1.

At W. H. Ewen School, no pupils out in morning. Notwithstanding gusty 30-mile wind, Mr. Sydney Pickles up with 60-h.p. Caudron biplane and flew to Farnborough.

Review of aeroplanes in afternoon, followed by fine flights by Messrs. Hamel, Noel, and Travers.

Brooklands.—At Vickers School, Mr. Knight out on school Farman, and afterwards on Vickers 5, in bad wind. Mr. Barnwell also flew well in spite of weather, on same machine. Vickers 6, which has done so much excellent work, has been in dock for slight alterations during week, but it is hoped that she will be out again shortly, flying as strongly as ever in the hands of Mr. Macdonald. Several new machines are expected at the Vickers School before long, and activity there is rapidly increasing.

At Hanriot's, Mr. Sabelli on single-seater, the only one out in afternoon. In spite of high wind he put up an excellent exhibition for benefit of large number of spectators at motor races.

Competitions could not be held owing to strong wind and threatening rain.

SUNDAY, September 29th.

Hendon.—At 3.45 p.m., Mr. Lewis Turner out on Grahame-White biplane and gave a fine exhibition in a 25-30 m.p.h. wind. Mr. Noel out at 5.15 on Henry Farman 80-h.p. biplane for 10 mins. flight. Mr. Turner out again immediately after and gave a 15 mins. flight. Mr. Desoutter out at 5.40 on 50-h.p. Blériot doing circuits. Fine flying considering horrible weather. Visitors hardly ever miss getting value for their money at Hendon.

At Blackburn School, Dr. Christie and Messrs. Spink and Buss all out at 5.40 a.m. rolling in high wind, and from 10 a.m. to 12.

At W. H. Ewen School, wind and rain, but pupils all busy assisting to assemble new 45-h.p. two-seater Caudron which had arrived previous day.

Brooklands.—No flying at all. Rain and wind storm.

The Royal Aero Club.

The British Empire Michelin Cup No. 1.

The Michelin Tyre Company has presented to the Royal Aero Club of the United Kingdom, for competition by British aviators, a trophy of the total value of £500.

Conditions.

1. The winner for the year 1912 shall be the competitor who, on or before October 31st, 1912, shall have remained the longest time in the air on an aeroplane in one flight without touching the ground. The flights may only be made between the hours of sunrise and one hour after sunset, and in order to qualify for the prize the competitor must make a continuous flight of at least five hours.

2. Competitors may use any recognised flying ground in the British Isles, and all attempts must be made in the presence of the official or officials appointed by the Royal Aero Club.

3. Competitors desiring to leave the precincts of the flying ground during the flight must carry a barograph set and sealed by the officials prior to the start.

4. The time will be reckoned from the moment of crossing over the starting line in actual flight to the moment of alighting. The landing must be in sight of the official or officials.

5. The entrant, who must be the person operating the machine, must be a British subject, flying on a British-made aeroplane, must hold an aviator's certificate, and must be duly entered on the Competitors' Register of the Royal Aero Club.

6. The complete machine and all its parts must have been entirely constructed within the confines of the British Empire, but this provision shall not be held to apply to raw material.

British Empire Michelin Cup, No. 2, £600.

The Michelin Tyre Company has presented to the Royal Aero Club of the United Kingdom, for competition by British aviators, the sum of £600, to which will be added a trophy to be retained by the winner.

The following are the rules governing the competition for the year 1912 :—

1. The winner for the year 1912 shall be the competitor who, on October 15th, 1912, shall have completed a prescribed circuit of about 186 miles on an aeroplane in flight in the fastest time, reckoned in miles per hour.

2. Competitors may select their own circuit of about 186 miles, but the start must be made from a flying ground approved by the Royal Aero Club, and the proposed circuit must be submitted to the Royal Aero Club before the flight is made. The complete circuit must be accomplished without alighting.

3. The flight must be observed at each point named in the circuit by officials appointed by the Royal Aero Club.

4. A number must be prominently displayed on the aeroplane in places approved by the officials, and when flying round each of the points selected in the circuit the aviator must fly sufficiently low so that his number may be easily verified by the official observer.

5. The circuit must be completed between the hours of sunrise and sunset on any one day.

Other rules as in No. 1 Competition.

The following courses may be used for this competition :—Brooklands, Larkhill, Newhaven, Brooklands; Laffans Plain, Newhaven, Larkhill, Upavon, Laffans Plain.

A Testimonial to the Royal Aircraft Factory.

Th following letter has been received from Mr. Brian M. Dodds, director of L. Howard-Flanders, Ltd. :—

"Sir,—As we have had trouble with our machines on the rolling test at Laffan's Plain we are afraid that your remarks in this week's editorial in The Aeroplane may be attributed to us.

"We wish to say that, as far as we are concerned, the tests at Farnborough have been carried out with perfect fairness, and every courtesy has been extended to us by the officials of the factory when we have had breakdowns.

"We certainly consider the test unnecessarily severe and liable to produce a wheelbase which may have many disadvantages; but we have never suggested any favouritism."

The Editor can vouch for the fact that the opinions quoted last week did not come from anyone connected with the Flanders firm or from anyone connected with any other firm which has ever submitted machines for test by officials of the Royal Aircraft Factory. They were merely given as a specimen of the lamentable lack of faith in the bona-fides of the authorities which, unfortunately, still exists in the trade, and of the stories that circulate verbally therein. The sooner a definite policy is declared by the authorities the sooner such distrust will vanish, and the sooner the trade will be established on a sound basis.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. Monday, to ensure insertion.

For the convenience of Advertisers, replies can be received at the office of The Aeroplane, 166, Piccadilly, W.

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EASTBOURNE AVIATION CO. Tuition on genuine Blériot monoplanes and Bristol biplanes. Inclusive fee for one type, £65; for both types, £90. Practical workshop instruction. Passenger and exhibition flights arranged.—For full particulars apply The Aerodrome, Eastbourne.

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AERODROME.

TO FLIERS AND MANUFACTURERS.—The Midland Aero Club are prepared to grant permission for the use of their extensive Flying Grounds at Castle Bromwich, on the outskirts of Birmingham, to those desirous of manufacturing or testing aeroplanes, gliders, balloons, etc.—For full particulars apply Gilbert Dennison, Hon. Secretary, Handsworth, Birmingham.

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SATURDAY NEXT.

OCTOBER MEETING

(Under the Open Competition Rules of the Royal Aero Club.)

THE FOLLOWING RACES WILL BE FLOWN ON

SATURDAY, OCTOBER 5th, 1912, at 3 p.m.

(Weather permitting.)

PROGRAMME.

3 p.m.
Event No. 1.—GRAND SPEED HANDICAP.
(Preliminary Heats.)

3.45 p.m.
Event No. 2.—BOMB DROPPING COMPETITION.

4.45 p.m.
Event No. 3.—FINAL HEAT OF GRAND SPEED HANDICAP.

From 5.15 p.m.
EXHIBITION and PASSENGER FLIGHTS by C. Grahame-White and Competitors.

THURSDAY AFTERNOON, OCTOBER 3rd.
Special Exhibition Flights.

SUNDAY AFTERNOON, OCTOBER 6th.
Exhibition and Passenger Flights by Competitors.

Thursday, October 10th...Special Exhibition Flights.
Saturday, ,, 12th...**Second Autumn Meeting.**
Sunday, ,, 13th } Special Exhibition Flights.
Thursday, ,, 17th }
Saturday, ,, 19th...**Hendon Meeting.**
Saturday, ,, 26th...**Second October Meeting.**
Saturday, November 2nd...**November Meeting.**
Tuesday, November 5th...**Grand Illuminated Night Flying and Firework Display (8 p.m.).**

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THE AEROPLANE

1d WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [REGISTERED AT THE G.P.O. AS A NEWSPAPER.] THURSDAY, OCTOBER 10, 1912. No. 15.

THE NAVY AT WORK.



Photographs by "The Edinburgh Evening News."

Above.—Commander Samson, R.N., coming ashore on the 100-h.p. Short Tractor at Carlingnose. Below.—Capt. Gordon, R.M.L.I., starting out on the 70-h.p. Short Tractor.

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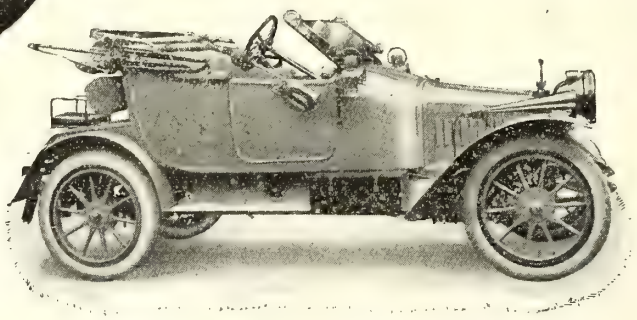
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Editorial and Advertising Office—166, Piccadilly. Telephone 5407 Mayfair. Telegrams—Aileron, London.

Aviation and the Indian Army.

It is, of course, an accepted fact that the Indian Army, including British regiments in India, is by far the most efficient portion of the land forces of the British Empire. Everything is kept on a war footing, the artillery is at full strength, the men are under more continuous training, and there is almost always a certain amount of fighting going on with hill tribes on the frontier to give experience of active service.

It is, therefore, all the more strange that in the latest phase of military activity the Indian Army should be years behind the smallest European State, but it is, nevertheless, a fact that, for all the Indian authorities have done, the aeroplane as a factor in modern warfare might never have existed.

A certain amount of flying has been done in India under the most unfavourable conditions possible, and generally on the most absurdly inadequate machines, but so far from impressing the authorities it seems rather to have convinced them that India need not even turn over in its thousand-year sleep to consider the possibilities of military aviation. Those who ought to have been sufficiently intelligent to appreciate what the clumsy wallowings of under-powered box-kites presaged, merely looked at the performances without making any allowances for the circumstances under which they performed.

As a matter of fact, India not only possesses great possibilities for aeroplanes, but has immediate need of them, purely on account of their military importance.

The Need of Aeroplanes.

The hide-bound conventionalist will object that aeroplanes can be of no use in the little hill wars on the frontier, and that we are never likely to want them for anything else. If that be so, then why keep such a large and efficient force of horse and field guns, which are equally useless in a hill war?

The truth is that we keep them as a safeguard against two eventualities, either against another rising of the native population—which is never very far off—or against a war with Russia, which everyone in India believes to be a certainty some day or other. Our unnatural treaty with Japan has doubtless postponed the latter event, for without that clever piece of diplomacy Japan would never have risked a war with Russia, and if there had been no Russo-Japanese war, Russia would have had by now a good many more thousands of men ready for the long-promised conquest of India. But Russia has wonderful recuperative power and the blow has got to fall some day. When it does, we shall need aeroplanes, and need them badly.

If we were certain that the Russian advance would be made from Samarkand through Chitral, we might admit the comparative uselessness of aeroplanes, for the hill country through which such a line of march would extend, being mostly perpendicular, does not offer much prospect for the ordinary aerodrome flier. But the modern aeroplane, which is capable of putting up height records of 16,000 to 18,000 feet, would be usable in a country where hills rise 5,000 to 6,000 feet above the average level of the ground, and there would always be brave men willing to take the risk of a strategic reconnaissance of a hundred miles out and home even over such ground, and many more would take on a flight of twenty miles round a hill to see what was on the other side, so it is more than probable we should need aeroplanes in that case.

Russia's Probable Move.

On the other hand, it seems much more likely that a Russian advance on India would be made up the Helmund Valley to Candahar, and thence to Quetta. The Russian base would be at Krasnovodsk, on the Caspian Sea, when a strategic line runs through Merv to the rail-head at Kushk, within striking distance of Herat, whence the line of march would be through Seistan to the Helmund.

We, on our part, have our line from Quetta to the present rail-head at Chaman, whence a comparatively short time would be needed to rush the rail-head on to Candahar in case of war, though we cannot carry the railway there to-day on account of our understandings with Afghanistan.

This being so, it is obvious that by the time a Russian army got as far as Herat, we should have our troops at Candahar, and that the actual fighting would take place in the Seistan deserts, or in the comparatively open valley of the Helmund, where it would not only be possible, but almost easy, to use any aeroplanes of fairly modern type. Furthermore, the writer gathers that the lie of the land from Quetta to Candahar is such that it would be quite possible for aeroplanes to fly the whole distance down the valley, and so relieve the congestion likely to be caused in transporting and feeding an army by means of a single-track railroad. True, Quetta is some 5,000 feet above sea level, but that is only likely to make it a trifle more difficult to get the right carburetter adjustments to suit the new atmosphic conditions, as has been found at Johannesburg, which is even higher.

The Native Question.

Apart altogether from the possibility of war with Russia, there is the native question to consider. Even if no native rising takes place, it is as well that the prestige of the European should be raised. In these days when the babu lawyer is permitted to practise on equal terms with the European, and

when he may even become a magistrate in a position to be superior to Europeans; when the native soldier shoots as well as and rides better than the European; and when every effort is made by sincere but misguided humanitarians to induce the native to believe he is rather more than a man and brother, it is as well that the European should do something that the native cannot do. Under such circumstances it must be perfectly obvious that the aeroplane and, to some extent, the dirigible balloon afford opportunities for impressing European superiority on the enormous native population which cannot be obtained in any other way.

Further, it must be remembered that in case of a native rising, all telegraph lines and railways would at once be cut by the populace, and that the aeroplane would be the sole means of really rapid intercommunication between our small diffused garrisons.

Ignorance in High Places.

There is yet another reason why aeroplanes and airships should at once be brought into use by our Army in India. While general officers in this country, and in Europe generally, are becoming personally intimate with aircraft of all sorts, watching their evolutions, learning their possibilities and impossibilities, and generally getting a fair working knowledge of "the nature of the beast," even to the extent of occasionally risking their valuable persons in the machines, those officers of high rank who are in India remain in a state of absolute ignorance of aviation except for what a few of the more progressive of them learn from reading. It is a fact that some very senior officers do not even know the difference between an aeroplane and a balloon. Yet, in due course, a number of them will return to this country and be put in command of troops who are used to working with aeroplanes, and we shall then have the lamentable spectacle of the officer commanding a considerable force having the control of a new arm which he does not know how to use.

Also, British regiments now in India will return to find that various new ideas have to be absorbed before they can operate successfully with or against aeroplanes, and that some of their notions of warfare are now out of date. In fact, British soldiers of all ranks in India, instead of being the most efficient portion of the Army, are rapidly becoming out of date, because the high authorities do not realise the possibilities India offers for the development of aeronautics.

It will doubtless be argued that anything in the nature of a failure is likely to damage our prestige in India, and that the attempts made to use flying machines in that continent have failed so far. But it must be remembered that the modern aeroplane or dirigible is already capable of performing well under worse conditions than those prevailing in most parts of India.

Immediate Action Necessary.

The authorities may just as well make up their minds to start at once to organise an Indian Army Flying Corps, for there is much to be done before such a corps can be of any practical use in time of war.

So far as personnel is concerned, the nucleus of the corps already exists, for there is already considerable interest in flying among junior officers in India, and, in consequence, quite a number of Indian officers home on leave have devoted their own time and money to learning to fly, despite the fact that officers of British regiments in India, or those who belong to native regiments, do not get their £75 returned, as do those serving in this country, nor are officers of native regiments appointed to the Royal Flying Corps.

One officer of native cavalry was attached for a short period to the late Air Battalion at a period when it was struggling along with a few obsolete box-kites, and on the strength of that mild experience he has been appointed adviser on aviation to the Indian General Staff. Excellent officer as he is, he can scarcely possess the knowledge necessary at the moment for such a post, for it takes anyone on the spot, in the centres of European aviation, all his time to keep pace with modern developments and see a few months ahead. Advice on aviation for the Indian Army can only be given adequately by an officer with much experience of aviation and a mind quite free from prejudice who has a roving commission to visit all the aerodromes in Europe and report constantly on the latest types of machines which are being produced there. The organisation of a flying corps in India is a matter for an officer or officers who have gone straight out from Europe fully primed with the latest knowledge on the subject. Therefore the obviously sensible idea is to send home all officers in India who have already studied aviation, let them spend a few months bringing their knowledge thoroughly up to date, and then to set them to work, immediately they return to India, on the task of organising an adequate flying corps.

The Possibilities of Aviation in India.

The opportunities for flying in India are vastly greater than most people imagine. At certain hours of the morning and evening flying is possible even in the open plains where "sand devils" most delight to riot in the heat of the day. But, apart from that, the enormous river-ways afford great scope for hydro-aeroplanes.

One could fly comfortably the whole way up the Ganges and the Kali, almost to Delhi. It is quite probable that up the tributaries of the Brahmaputra one could penetrate into the Abor country, with salutary effect. On the west, Bombay Harbour offers most tempting space for an aerodrome. Farther north, one could fly up the Indus from Karachi to Attock, and thence up the Kabul River to Nowshera, or quite close to Peshawur; or, by turning east, one could get up the Ravi to Lahore. Any of these rivers are a few hundreds of yards wide at the farthest points from their mouths mentioned above, and, though there might be occasional rapids to fly over, or even gorges to fly through, a modern machine could do it, though beginners might prefer to experiment in the wider reaches wherever they occur.

Supplementary Uses.

Hydro-aeroplanes, manned by pilots trained in India, could probably be used with considerable effect against gun-runners on the Persian Gulf, the moral effect of the new instrument of war being worth quite as much as the practical work it could do. In this case one would probably use either the very biggest type of armed coast-defence machine, with a crew of several men, or the small single-seater sea-scout operating from a cruiser, but the present type

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of two-seater would be too small for the work the first type would do, and too large to be used from a ship.

Further, in case of a big European war, in which our army in Egypt would be more or less involved, India should be in a position to supply pilots and machines for the Egyptian army and for Egyptian coast defence. It is fairly obvious that all our pilots and machines produced at home would be needed by our Expeditionary Force, and for the defence of our own coasts, and in any case, even if we had men and machines to spare, we should probably find considerable difficulty in getting them as far as Egypt while our fleet was busy in the North Sea and in the Atlantic.

The Need for Proper Training.

However, before any of these things come within the scope of practical politics, there is much to be done in India itself in the way of organisation and preparatory work. In the first place, there do not exist in India either the men or the material to do the simplest repair work. Men have to be trained for the work, and material has to be acquired. Owing to the difference in climate, it is quite probable that woodwork which is quite reliable in Europe may disintegrate dangerously in India. It may be found that all-steel machines are the only ones suitable for continued use, and that, owing to the humidity of certain districts and during certain seasons, special treatment of metal parts is needed to protect them against rust.

Troops have to be trained in the handling of machines, and experiments have to be made in the transport of aeroplanes under the conditions existing in India, where a whole transport column may consist entirely of native troops in charge of a single European non-commissioned officer.

All these details of personnel and materiel take months to organise and get into working order, and every day wasted before a start is made may mean a "regrettable incident"—as a crushing defeat was euphemistically and officially called in South Africa—when our Indian Army is next needed for active service.

Dirigible Balloons.

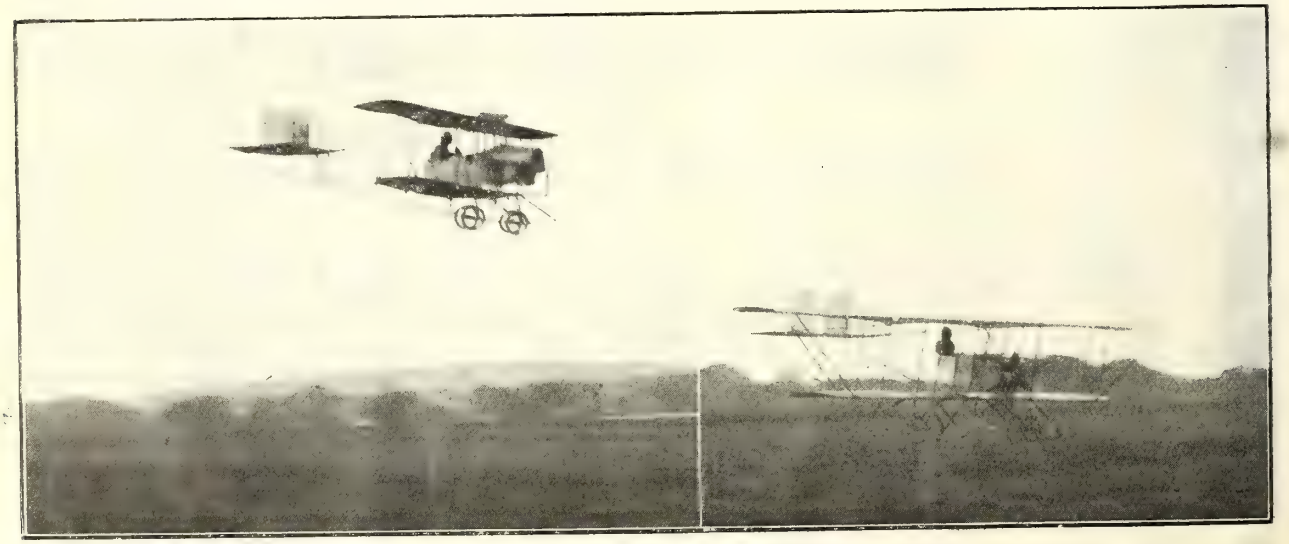
Ordinary captive war-balloons have hitherto been a failure in India, chiefly because the fabric would not stand the climate, but recently considerable advance has been made in the manufacture of this material, and there is no reason why modern dirigible balloons, even of the smaller sort, should not be used very largely in India. For use in frontier wars, where they would have no aeroplanes up against them, they would be invaluable, and it is quite possible that their bulk might impose on the native mind, and impress it more than the small aeroplane would do. For this reason steps should be taken to organise a branch of the service to operate with dirigibles, and the training of troops to handle air-ships is even more necessary and more difficult than where aeroplanes are concerned, for larger crews are needed, and they must know their work better.

West and East.

Nearly two years' hard work in organising, overcoming opposition, and clearing away the results of nepotism, favouritism, and personal squabbling has resulted in our army at home possessing the protoplasm—one can scarcely yet call it the embryo—of a flying corps, which gives excellent promise of becoming some day a useful adjunct to the Service. If it takes so long to make even a beginning in the West, how long is it going to take to get anything moving in the East? If a start is made now with those officers in India who already know something about flying, it is just possible that there may be an Indian Flying Corps in ten years' time—if Russia and the educated native allow us to remain in the continent. Of course, it is no use trying to hurry over it, but we may as well begin to move gently forward. No individual good ever came of hurrying India, for, as Mr. Kipling remarks:—

> The end of the fight is a tombstone white, with the name of the late deceased;
> And the epitaph drear: "A fool lies here, who tried to hustle the East."

Still, if we start now, and hasten slowly, and a few heroic fools will kill themselves trying to hustle the East, we may evolve an air corps which may be the salvation of all our Eastern possessions.



Two Caudrons at Hendon.—On the left, M. Galy, the new pilot, flying the 45-h.p. two-seater. On the right Mr. J. H. James just landing on the 35-h.p. from the flight which won the £100 I.C.S. prize.

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The French Navy and the Aeroplane.

BY W. E. de B. WHITTAKER.

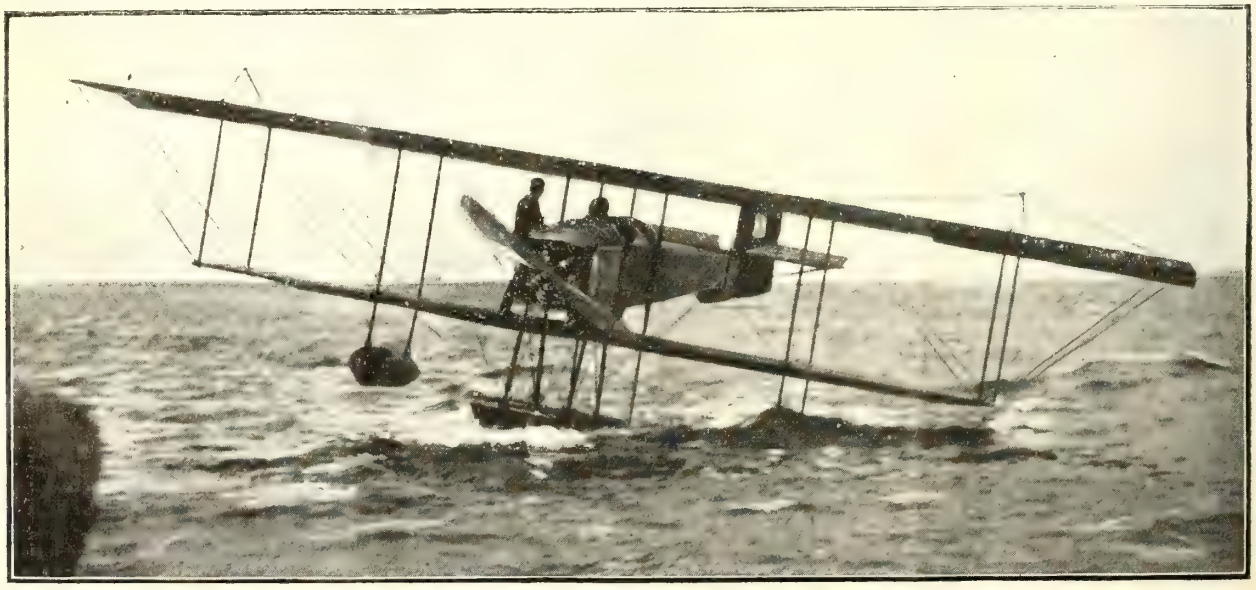
On September 25th and 26th there appeared in *L'Aero* two sections of a report entitled "L'aviation navale" and written by Captain Fatou, of the French Navy, and Commandant of the Naval Aviation Service. On September 27th, in place of the expected continuation of the report, appeared the following brief statement: "At the request of the Ministry of Marine, for reasons of national defence, we suspend the publication of Captain Fatou's report." This suspension, if it does anything, emphasises the value of the report and certainly establishes its credibility.

Naval aviation at the moment is in a nebulous state. Unlike military aviation, the lines of advancement are not clearly marked. It is not even realised what exactly is wanted. Amongst the experts there are countless diverse opinions, all externally of equal value. One doubts if any has a clear idea of the duties and scope of the naval aeroplane. It is simply known that it will be of great use, though that use is undefined. The only consolation at the moment is the realisation that each country is in the same predicament, and that Great Britain is probably not behind her neighbours in preparedness. Government departments are not garrulous and confiding, and silence is by no means an indication of neglect.

Captain Fatou has been in command of the "Foudre" since that cruiser was made the aviation mothership. He has devoted all his time for the last few months to a close study of the basis of the subject. He has authorised the purchase of divers types of hydro-aeroplanes which have proved their success in the course of recent coast meetings. Though such machines are not what are really required for serious naval work, they are the only material at hand, and from them it is possible to gain valuable experience. Their faults are of more interest than their virtues, as it is only in the elimination of such drawbacks that any progress can be made. The French Navy has in its possession hydro-biplanes of the Voisin (*type canard*). Henry Farman, Maurice Farman, and Paulhan-Curtiss type, and hydro-monoplanes of the Nieuport and Borel type.

He points out in the beginning of his report that two distinct types are necessary in the naval service. The first, to adopt his order, is for coast defence, and is not limited as to size; and the second is for work on the high seas, and must be compact, small, and fast. It is essential that both types shall be made more seaworthy that a forced descent in a heavy sea will not necessarily place them out of action. It should be possible for the pilot to make small repairs while on the surface of the water even in rough weather—a manifest impossibility with most of the existing types. Further, the planes should be so constructed that they will not be affected by sea-water. The engine should also be encased and protected from trouble. As naval aeroplanes may, owing to motor failure, be brought down some distance from land, it is necessary that a wireless telegraphy outfit should be fitted capable of use when the aeroplane is floating on the sea. Without such an outfit the capture of an aeroplane by a hostile fleet means not only the loss of the machine and pilot, but the loss of his acquired information. In the days to come aviators and aeroplanes will be cheap. It is the products of their reconnaissance which will be valuable. For many years innumerable slight mishaps will eliminate many aeroplanes from the serene course of their duty. It ought not to be possible for a defective magneto or a choked petrol pipe to seriously affect the destinies of an entire fleet.

Working from the land as they do there obviously need be no limit to the size of the coast-defence hydro-aeroplane. They can be housed in sheds of any size desired, and the existing naval harbours are quite large enough for even the most colossal of efficient aeroplanes. This idea has been put forward in these pages on several occasions by the editor, who is not invariably in agreement with the authorities. The whole question of size and construction is simplified by the fact that, when not in the air, the natural home of the hydro-aeroplane is the water. They rise from the calm water of harbours or bays, and if the Fates are kind alight there also. There is no practical reason why coast-defence machines should not be fitted with floats as at present. The boat body is, according to Captain Fatou, a necessity only on the sea-going aeroplane. In point of fact, there seems no adequate reason for any distinction between the two types as to this point. If the boat body increases the seaworthiness of any aeroplane, then it should be fitted to all. Possibly the question of size has something to do with



Photograph by the Edinburgh Evening News.

Captain Gordon, R.M.L.I., on the 70-h.p. Short hydro-aeroplane, with single central float, in the Firth of Forth.

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Captain Fatou's view. The boat body might be unnecessarily heavy on a large aeroplane, but the designers alone can tell us this.

The form of the sea-going aeroplane is affected by the limited space available on a ship of war for storage and preliminary manipulation. Its construction will of necessity be of great strength owing to the risk of damage when launching or hoisting in the aeroplane. The least contact between the suspended machine and the side of the vessel would probably cause serious damage. The slender wooden spars of the present day and the fabric surfaces have but little chance of surviving rough treatment. The sea-aeroplane of the future will, it is probable, be of steel throughout, built in such manner as will simplify the handling of it before and after a flight. The launching of aeroplanes from a ship is a matter of difficulty, but is a not insoluble problem even at the present moment. A rail of the Wright type could be employed. There are countless variations and methods possible. It is the retrieving of these aeroplanes after a flight which presents difficulty. Given a rough sea, a high wind, and an over-crowded deck on which it is necessary to alight, and there are many things in life more pleasing to a naval aviator. A single false movement and disaster follows. If the machine alights in the water alongside, the ship must be stopped in order that the aeroplane may be hoisted inboard. Such delay is likely to cause confusion and to disarrange carefully-laid plans. The aeroplane and its pilot cannot, as a common rule, be abandoned, as even the brutality of scientific war can find no excuse for that.

(To be continued.)

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," September 9th, 1912:—Royal Marine Light Infantry.—Captain Eugene Louis Gerrard is granted the temporary rank of major while holding the appointment of Squadron Commander in the Royal Flying Corps. Dated April 1st, 1912.

Special Reserve of Officers. Royal Flying Corps—Military Wing.—The undermentioned to be second lieutenants (on probation). Dated October 5, 1912: Henry de Grey Warter and Edward Keith Davies.

It is understood that arrangements are now being made at the Royal Aircraft Factory for the construction of six dirigibles, one of them being for the Navy. The last-mentioned is to be about twice the size of the unfortunate "Delta."

It seems highly probable also that a very large number of aeroplanes of the B.E. type are to be turned out by the Royal Aircraft Factory at an early date, as it is reported that there are twenty or thirty 70-h.p. Rénault engines in stock there at the present moment. Some of these are needed as spares for existing machines, but as a rule, if an engine is so smashed as to need replacing, a new machine is needed.

The new naval aeroplane base at Carlingnose, near Rosyth, on the Firth of Forth, was officially used for the first time on October 2nd, when flights were made by Commander Samson, R.N., on a 100-h.p. Short tractor hydro-biplane, and by Capt. Gordon, R.M.L.I., on a Short 70-h.p. hydro-biplane. The handling of the machines on the muddy beach appeared to be somewhat difficult, and a number of navvies on strike from Rosyth lent a hand in hauling them ashore.

It will be remembered that a considerable time ago it was pointed out in The Aeroplane that, in view of German aeronautical activity at Heligoland and Wilhelmshavn, it would be necessary for us to establish stations for coast defence aeroplanes along the east coast. A certain amount of work has already been done at Harwich, but Carlingnose is the first properly-established station. No doubt, in due course, similar stations will be made at Tynemouth, Teesmouth, in the Wash, and at other points along the coast. It is already announced that a station is to be established at Cleesthorpe to guard the mouth of the Humber.

Captain Gordon unfortunately turned the 70-h.p. tractor over on Friday. The incident is described by an eye-witness as follows:—"I had a rather good view of the capsizing of Captain Gordon's Short machine on Friday afternoon, as I was watching him throughout his trip with a telescope. He was travelling on the water, seemingly throttled down, with the wind dead astern, and the machine evinced tendencies to plunge the right wing-tip into the water, and seemed unstable on the float. He then tried turning—not very gradually—to the right to bring himself head to wind for rising. As he turned the wind lifted his right planes, and the passenger (Lieut. Hewlett?) climbed out at the starboard side of the fuselage and stretched out to the first inter-plane struts to counteract the side wind. This was not sufficient, and when broadside on to the wind the machine dipped the port lower wing-tip. The pilot immediately switched off, and the propeller entered the water practically at rest. The machine then slowly did a somersault to port, the passenger climbing out on top as it turned. Captain Gordon did not appear till later, but eventually joined his passenger on top. The machine floated towards one side, and of course down by the head. Assisted by fleet boats, the machine was towed back again."

FRANCE.

The escadrille of tandem two-seated Blériot monoplanes commanded by Captain-aviator Bellenger, which took part in the recent manœuvres and was present at the Villacoublay review, has returned to its station at Belfort. Three machines made the journey in the air, and remaining three packed in the special aeroplane transport wagons.

The naval aerodromes at Montpellier and Toulon are both in a busy condition. The commandant of the former centre, Lieut. de Vaisseau Réynaud, makes a great number of flights on a 70-h.p. Gnome-engined Henry Farman biplane over the surrounding sea and country. He has during the last few weeks given over forty officers their first flight in an aeroplane.

At Toulon is stationed the aviation mother ship "Foudre," under the command of Captain Fatou. The next month will see a large addition to the number of officers in training as aviators.

The Ministry of War has accepted as a gift to the country a monoplane constructed by M. Jacques Balsan and fitted with a 60-h.p. R.E.P. motor.

A military aviation camp is to be formed in the neighbourhood of Orleans, the municipality subscribing towards the expenses to the extent of £24,000. The Council of the Loire also subscribes £2,000. So does public spirit manifest itself in France.—W.

GERMANY.

Lieut.-aviator Hofer, who had an accident during the Imperial Manœuvres, died on October 1st as a result of his injuries. His passenger, Captain Rundstedt, is now out of danger, if not out of hospital.

There is a rumour that great trouble has been caused in the Ministry of Marine owing to an official of that department authorising the purchase of a Paulhan-Curtiss hydro biplane at the conclusion of the Monaco meeting. This has roused the anger of those who believe that only home manufacturers should have orders from the Government. However, this machine, which is now at Putzig, has proved so successful that a second is to be ordered, this time through the intermediary of a Berlin firm.—W.

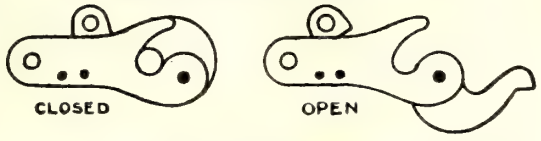
At the close of the German Autumn Manœuvres 143 German privates were to be attached to the different military aviation stations to undergo instruction as pilots. The majority go to Doeberitz, and the rest to Strasburg, Metz, and Darmstadt.

The rules for the South-German Circuit have more than ordinary interest, as the event is, in the first place, of a military character. Commencing on October 14th at Mannheim, it ends on the 20th at Munich, with intermediate stages at Frankfort, Nuremberg, and Ulm. The competition is only for machines built in Germany and Austro-Hungary, without, however, any restrictions so far as motors are concerned, and the starters are divided into two classes, viz., German and Austrian officers, with aeroplanes belonging to their respective War Offices. All contestants must carry a passenger. The Circuit proper commences on October 15th, as the first day is devoted to reconnoitering from Mannheim into the County Palatine and back.

A new military aviation station was opened on the Griesheim drill-ground at Darmstadt on October 1st. The hangars formerly owned by Euler were taken over by the War Office,

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and further supplemented to house the twenty machines that are to be stationed at Griesheim.

The naval Zeppelin airship made her first flight at Friedrichshafen, on October 7th. She will mount a machine gun. The new airship has a cubic capacity of about 775,000 cubic feet. It has 18 gas chambers, and three Maybach motors of 170 h.p. each. There are six propellers, two forward and four aft. On top is a platform from which officers will make observations.

RUSSIA.

The military aeroplane competition is still proceeding slowly. Herr Steglau, who has entered an aeroplane of his own design constructed entirely in wood, even to the plane surfaces, made a short flight on September 30th. When at a height of 80 ft. he fell and destroyed his machine, though he escaped unhurt. Lieut. Alexanovitch, flying a Haekel biplane (Russian), also fell and also was unhurt. The "Mars" monoplane on its first attempted flight was destroyed by fire owing to a backfire into the carburetter. Boutmy on a Russian-built Nieuport monoplane attained a speed of 64 3-5 miles an hour, and Khioni on a Khioni monoplane a speed of 62¾ miles an hour. The climbing rate of the Nieuport was 1,788 ft. in seven minutes. The competition is to be carried on until October 14. As a consequence of the Nieuport success the Russian military authorities intend to make large purchases of these machines. It is understood that before the end of the year the Russian Army will have in its possession 200 Nieuport monoplanes. There is sorrow in the homes of other Russian constructors, and protests to the committee are innumerable.—W.

A Continental contemporary gives a short survey of aeronautics in Russia, where the War Department is extremely anxious to bring its air corps up to Western standards. The Government paid a considerable subsidy towards the factory that Prince Submirski founded, but the works had to be closed. On the other hand, in the Government workshops aeroplanes are being turned out as fast as possible. The whole number of military machines is estimated at 200, of which 120 are housed in the Gatschina Aviation Station near St. Petersburg. Close on eighty of these are biplanes. England is represented mainly by Bristol double-deckers, Germany by the Albatros, whilst the bulk are of French construction, with an American Curtiss or two thrown in. The Russian army pilots err somewhat on the side of caution, and are not fond of wind. Abramowitch, the Russian engineer engaged by the German Wright Company, is introducing the Berlin make.

ITALY.

The first Paulhan-Curtiss hydro biplane ordered by the Ministry of Marine went through its tests at Juan-les-Pins on September 30th, and was accepted by representatives of the Ministry. M. Paulhan himself flew the machine.—W.

Mr. T. S. Harvey writes:—"I have been visiting the more distant flying centres where progress since I last saw them has apparently been unusually lively. Monoplanes seem to be almost exclusively used by both military and civil folk for School work, and it is a fact that very few unexplained accidents have occurred in Italy. That which overtook Sub-Lieutenant Regazzoni at the Chiribiri School is typical of most of them. He lost his life through a false manœuvre. This most worthy and unfortunate firm have just patented a promising new landing chassis, and a recent flight from Faenza to Piacenza—220 kilometres in 100 minutes—speaks well of both machine and engine. Their 100-h.p. water-cooled motor is, I fancy, a coming favourite.

"The papers have served us up a fearsome tale of an inventor who was killed by his propeller parting company with its engine just after he had started the latter. I gladly suggest that the inventor was the journalist, as on the spot nothing was known of the event. At any rate, it was not at the Helios School, where handle starting is provided. This motor is to be entered for the military trials, so that we have quite a fine display of Italian engines able actually to fly Italian machines. The new two-cylinder opposed and water-cooled model was fitted to two machines, and I am told is satisfactory. The manager when I arrived was experimenting on a system for converting a fast and tricky monoplane into a sober vehicle for temporary use as an instruction plane. The idea was to blunt the entry by attaching a hollow tube a few inches in diameter along the whole extent of the front edge of the wings.

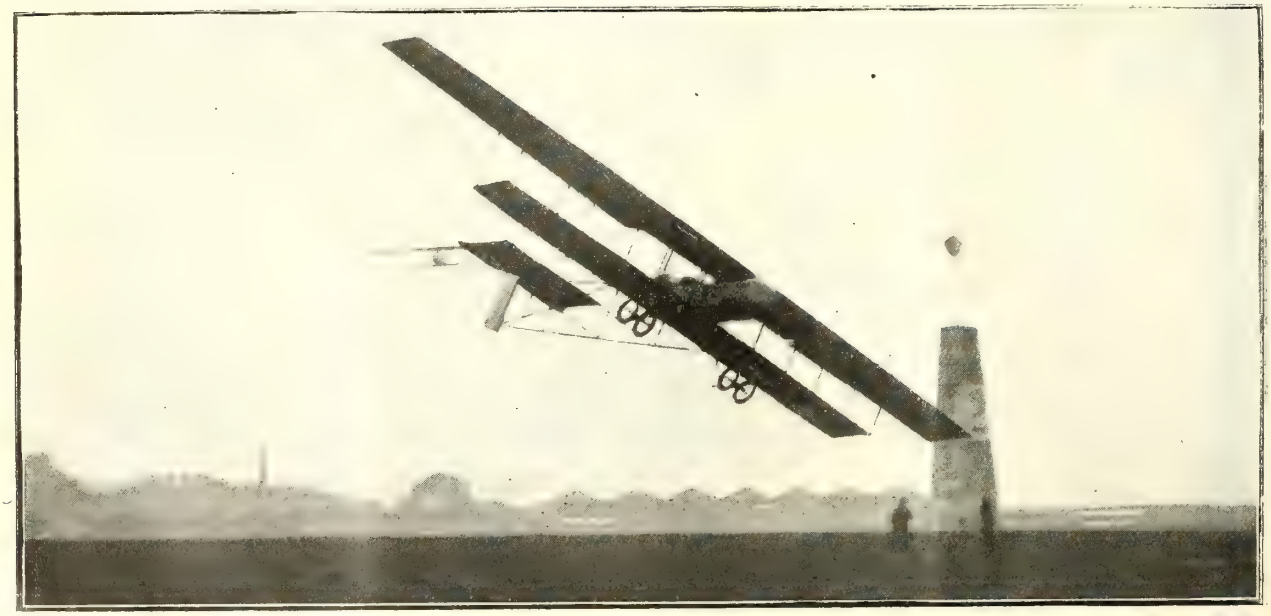
"An interesting experiment in machines was that shown me at Caproni's works at Somma, now completely equipped for the turning out of every part of their machines from plating to engines. It is nothing less than a monoplane designed for automatically variable incidence according to the pull of the engine. The wing spars pass through and move in semi-circular guides of great strength, about which the whole of the rest of the machine is built up. One might say that the body is slung to the wings. These are free to move about 35 degrees.

"The Asteria firm are wisely throwing their energies into heavy 'Camion' types, and I hope to see many of them in use by the non-commissioned officer aviators at Lombardore, not Cameri, as was first stated.

"Nosari recaptured the Italian passenger height record last week on an Asteria biplane. Apparently naval pilots are all to become hydroaeroplanists; so, as is proper, the services will be kept quite apart. Commander Scelsi, our great dirigible pilot, who recently passed for his aviation brevet, is surely the first man to do his tests on a waterplane, a Triad. At last M.I., the new dirigible, is actually ready for service."

BELGIUM.

Garrison manœuvres have during the last few days taken place in the vicinity of Antwerp. Lieut.-aviators Moulin, Nelis, and Sarteel, with Lieut.-aviators Deschamp, Lebon, and Wahis as observers, made several reconnaissances on



Mr. Grahame-White with Mr. Gates as passenger making a turn at Hendon on the 70-h.p. Farman biplane, last Saturday. Mr. Noel on the 80-h.p. Farman may be seen just behind him.

their 70-h.p. Gnome-engined Farman biplanes from their headquarters at Brasschaet. Despite the high wind and the amount of flying done no accidents of any sort occurred.—W.

THE UNITED STATES OF AMERICA.

A considerable amount of work has been done during the recent manœuvres by the various officers attached to the aviation section of the Signal Corps. Most of the flying was done on the new Burgess tractor biplane recently acquired for the Army. Lieut.-aviator Foulois flew it first for the Umpire's Staff, and then for the Blue Army. Lieut. Milling on a new Curtiss biplane was the only other aviator to make any flights worth mentioning.

Lieut. de Witt Milling, aviation section, Army Signal Corps, leaves for France this month under orders from the War Department. He is to visit all the French military aviation camps and make a close study of French methods in military aeronautics.—W.

Lieut. L. C. Rockwell and Sergt. Frank S. Scott, of the United States Army, were killed on September 28th by falling from a height of 50 ft. Lieut. Rockwell, who was piloting the machine, was trying to qualify for the military certificate. With Sergt. Scott as a passenger he flew for eight minutes at a height of 500 ft., and then descended to within 50 ft. of the ground. When he tried to turn upward again the machine buckled. His fellow-officers rushed up and lifted the engine off the bodies, but they found Sergeant Scott already dead. Lieut. Rockwell died when he reached the hospital.

ARGENTINA.

Three Argentine officers are on their way to Germany to be instructed at Frankfort in the operation of the two Euler biplanes which the Argentine has recently purchased.

BULGARIA.

It is stated on German authority that the aeroplanes needed for the Bulgarian Aviation Corps will be purchased from German firms. This although a commission of Bulgarian officers has paid lengthy visits to France and England, where several aeroplanes were bought. It is said they have been or will be discarded in favour of purely German makes, and several Bulgarian officers have arrived at Berlin (Johannisthal) to be instructed in the different makes.

Foreign Notes.

France.

M. Charles Voisin, who was killed last week in a motoring accident, was buried on September 29th at Neuville-sur-Saone, the scene of his death and the home of his family. Several of those whose names are famous in aviation were present at the graveside.

The hydro-aeroplane race between Paris and Rouen and back for a prize offered by " L'Aero " is unlikely to take place owing to police intervention. The Ministries of Public Works and of the Interior desire to hold a conference, the results of which will be announced too late to permit of the race taking place. The police are not sure whether such a race would interfere with the ordinary public rights to use the waterway.

Herr Hirth, the German aviator, has been in Paris with his aeroplane awaiting a good opportunity to fly for the Coupe Pommery.

M. Janoir, flying a 50-h.p. Gnome-engined Deperdussin monoplane, made an attempt on the Coupe Pommery on September 4th. Leaving Calais at 6.20 a.m., he landed at Contis-les-Bains, in the Landes, at 5 p.m., after making brief descents at Dourdan, Poitiers, and Bordeaux.

On September 5th M. Garros visited the Morane-Saulnier School at Villacoublay to inspect the monoplane on which M. Legagneux created a new height record recently. He made a flight of a few kilometres on this machine in perfect style.

Germany.

At the Aussig aviation meeting Herr Illner, flying a monoplane, was forced to land in a field outside the aerodrome. The owner of the field and his wife, who were standing in the open, were both knocked down by the aeroplane, the woman being killed instantly.

The flying at the opening of the Johannisthal meeting was not of deep interest. The duration prize on the first day fell to Sedelmayer on a German Wright biplane for a flight of 50 minutes. Lieut. Kruger also carried off minor prizes for minor flights.

A new passenger altitude world's record was accomplished by Sablating at Berlin-Teltow, during a test of the Bomhard-Pfeil biplane intended for the German navy. Carrying three passengers, Sablating reached an elevation of 1,120 metres and landed in a fine glide after being in the air for 25 minutes.



Photograph by the Edinburgh Evening News.

Bringing the Skipper ashore.—Commander Samson, R.N., carried in from his hydro-aeroplane at Carlingnose.

Twenty-four firms have entered for the competition for aerial motors in Germany, a prize of 50,000 marks having been presented by the German Emperor, who is greatly interested in the furtherance of matters aviatic. The tests take place in the new laboratories at Johannisthal, and last until January 1st, whilst the awards themselves will be published on the 27th of that month, His Majesty's birthday. Of the 65 motors the entrants have put down for competition, 13 are air-cooled, the remainder water-cooled. The Cannstatt-Daimler Co. has a collection of 14 motors on the list, ranging from 50 to 95 h.p.; the second largest number is that of the Argus Co., which has also entered the most high-powered group of all, consisting mainly of machines of 100-115 h.p.

Excellent entries, so far as quality goes, have been obtained for the South German Circuit, which begins on the 13th inst. at Frankfort. All the machines are exceptionally high-powered, being fitted, with very few exceptions, with 100-h.p. Argus motors. The military machines consist of Rumpler monoplanes, Albatros, Ago, and Euler biplanes, whilst the civilian list is a little more varied. Herr Hirth is a general favourite; he will pilot his sporting little 95-h.p. Rumpler monoplane with a Mercedes motor. Lindpaintner, steering a 100-h.p. Ago-Argus biplane, is another prominent aviator taking part in the circuit.

The dirigible balloon "Viktoria Luise" has now concluded its season of passenger trips. During that period which is called a "summer" this dirigible has flown 25,680 kilometres in the course of 183 journeys. Passengers to the number of 3,902 have been carried. Such success gives one reason to think seriously of the dirigible and its military future.

The firm of Batschari at Baden-Baden, of cigarette fame on the Continent, offer a sum of 10,000 marks (£500) to the aviator who manages to fly from Berlin to Paris in a day, the time to reckon from an hour before sunrise until an hour after sunset. No restrictions are made as to nationality. It is also most probable that the Rumpler firm will extend the period under which they offered a Rumpler-Taube for the same performance. Hirth was eager to try for the Rumpler prize last week, but his motor ran badly, and since then the weather has obliged him to postpone his attempt.

Herr Alig, a German aviator, and a mechanic with whom he was flying in a biplane at Johannisthal, were killed on October 6 by falling 600 ft. More fatal aviation accidents have taken place at this aerodrome than at any other place on the globe.

Spain.

Spain is apparently a happy hunting-ground for the aviator whose profession is the giving of exhibition flights to enlighten the rural mind. M. Paumier is now at Orvieto with his Borel monoplane. He is so satisfied with his treatment that he intends to remain in Spain for some time to come.

United States.

Charles F. Walsh, the well-known American aviator, was killed on Thursday last at Trentham, New Jersey, while giving an exhibition flight at the Inter-State Fair.

Mr. Cody's Fine Effort.

On Monday last Mr. Cody made his first attempt on the Cross-Country Michelin Cup, and put up a very fine performance. He left Laffan's Plain at 7.44 a.m., and at 8.20 he passed over Larkhill. Fifty miles in 36 mins. is fairly fast, considering that there was absolutely no wind. There he turned for Eastbourne, reaching that town in good time, and after turning there for home, was brought down at Lewes by a petrol stoppage. He was using the first of the new 100-h.p. six-cylinder Green engines on his Military Competition biplane, and though he had only flown with it two days previously, he was so pleased with it that he started without further tuning. His terrific speed is proof of the power the new engine gives, and the engine is notably free from vibration and very quiet when running at full power. It looks as if the Green Company has once more succeeded in going one better than foreign engines of similar type.

Good Work at the Ewen School.

One of the most active schools in this country at present is the W. H. Ewen School at Hendon, and certainly there is no reason for any of the pupils to complain that they are not getting full value in the way of tuition and opportunities for flying since Mr. Ewen returned from his exhibition flights to give the school his personal attention. The recent addition of Messrs. Baumann and Pickles as instructors ensures each pupil having excellent tuition.

The pupils now have at their disposal two 35-h.p. Anzani-Caudron biplanes for practice and certificate flights, two 25 h.p. Anzani-Blériot monoplanes, and one 28-h.p. Anzani-Deperdussin monoplane for the preliminary rolling, and for circuit flying; one 60-h.p. Anzani two-seater Caudron for passenger flights, so that pupils may become accustomed to the manœuvres of an experienced flyer before attempting them themselves; one 45-h.p. Anzani two-seater Caudron as a standby for the 60-h.p., and one 45-h.p. Anzani-Caudron racing monoplane which is reserved for exhibition and competition flying, and may be placed at the disposal of a pupil who has qualified for his certificate if he proves himself to be an unusually good pilot, and wishes to demonstrate his ability in a big cross-country flight, or in competition.

Owng to the number of machines available, there are always sufficient mounts for the pupils, in spite of their numbers, and it is very satisfactory to know that certain pupils who at one time felt that they were not getting as much attention as they expected are now most enthusiastic supporters of the school.

The school scored several points on Friday last. Firstly, Mr. J. H. James, the first student of the International Correspondence Schools to complete the theoretical aviation course instituted by that establishment, won the £100 prize offered by the I.C.S. for the first "graduate" in theory to fly a mile. Mr. James, who is only nineteen years of age, has for some time been a pupil of Mr. Ewen's, and he made the requisite flight on the famous 35-h.p. Caudron biplane in excellent style, covering about five miles instead of one. Almost immediately afterwards he went up for his R.Ae.C. certificate tests, flying very well indeed, going to about 250 feet instead of the requisite 165 feet, and landing perfectly. Dr. Edmunds, the first Australian doctor to fly, took the first half of his brevet later on.

The same afternoon Mr. Sidney Pickles on the tiny 45-h.p. Caudron monoplane flew to Brooklands and back, taking 16 minutes to go, and 17½ to come back, by far the quickest time ever done for the double journey.

M. Galy, the new Caudron pilot, did some fine flying on the 45-h.p. Caudron biplane in the course of the afternoon



A Group at Hendon. Left to right.—M. Warren, inventor of the Warren Safety Helmet; Dr. Edmunds, the first Australian doctor to fly; Mr. James, winner of the I.C.S. £100 prize; and Mr. Ewen, chief of the School.

The Hydro-Aeroplane.

BY Mr. J. L. TRAVERS (*The pilot of the 70 h.p. Farman hydro-aeroplane during the tour of the South Coast*).

Although the hydro-aeroplane is barely a year old, it has already taken its place as a distinct branch of engineering design.

This, the latest step in mechanical transport, has made its appearance on the centenary of the steamship, and with such a forcible parallel in mind, who can help speculating on the future and attempting to forecast the possibilities of sea-air-craft?

How is it that the ordinary aeroplane, either monoplane or biplane, has not made more progress as a general means of conveyance? It cannot be due entirely to the mechanical inefficiency of flying as compared with road or rail travel, because it is obvious that flying, from its very directness, has advantages which outweigh mere fuel consumption.

It seems as if the slow progress made in commercial aerial traffic is almost entirely due to the discouraging effects on the public mind of accidents which have occurred in flying over land. And, in spite of the large amount of successful flying that takes place, one accident does more harm to aviation than can be remedied by 10,000 miles of successful flight.

When the causes of accidents are analysed it is apparent that most of them happen either through engine failures causing forced landings on unsuitable ground, or to some part of the machine failing in mid-air. Some accidents occur from flying in too strong a wind, and some purely from inexperience.

It is obvious that the sea machine is safer, because the air is calmer over the sea, which is due to the absence of hills, trees, and houses, which break up the air and cause eddies over the land.

Again, it is not necessary to fly so high over the sea, because one can "land" anywhere in case of engine failure, and for the same reason there is less risk of smashing up in "landing." As there are no hampering conditions, except perhaps that of expense, and no artificial limitations, such as the size of the field on which one may have to alight or the size of the shed in which the machine is to be housed, it is certain that the machine of the future will be of large size and greatly increased horse-power, compared with which the hydro-aeroplanes of the present day are but toys.

The Chief Types.

There are at present two classes of machines, hydro-aeroplanes, which are land machines fitted with floats, and aero-hydroplanes, which are hydroplane boats fitted with planes, and it is possible to have an infinite gradation of designs between the two extremes.

As things are at present, practical results are in favour of the hydro-aeroplane, no doubt because it has been easier to construct. Standard types of aeroplanes have been taken and fitted with floats.

However, many experts consider the aero-hydroplane, or flying-boat, the better type. This is, firstly, because the boat is a more seaworthy job than the pontoon float. Secondly, because there should be a saving of weight in the combination of boat and fuselage, i.e., the stern of the boat tapers back and upwards to hold the elevating plane and rudder, and an elevator may be fixed on the bow. There is also a simplification resulting from the absence of outriggers.

All these are problematical advantages that remain to be proved, and the bulk of practical performance stands to the credit of the hydro-aeroplane. Taking as an example the Henry Farman, this can be anchored out in a 3 ft. sea-way without hurt, it can be started off a sandy beach, shingle, a wooden raft, or a stone groyne. The best way of starting is off a proper wooden slip-way, but smooth sand is nearly as good.

Of course, in the machine of the future, the engine will always be started from the inside of the machine and the necessity for the barbarous operation of propeller swinging will vanish. This is already done on the Astra machine.

The Farman machine can be steered in a fairly rough sea, though the rougher the sea the more difficult this becomes. The floats project in front of the centre of gravity and the seas striking the front part of the float prevent the machine heading up to wind. A possible cure for this might be a sea rudder, fitted at the rear end of the float or floats. The fact that the Farman has two floats set wide apart undoubtedly makes the machine steady in a sea; but such a design strains the framework more than a single float or boat would do. The Farman floats extend well forward to prevent any chance of overturning on alighting, and they extend sufficiently far aft to allow the machine to float at rest with very little weight on the rear float.

Alighting has to be effected by letting the rear end of the float touch first. Of course, the floats are placed far enough away from the propeller-centre to allow ample clearance between blade and water in a rough sea.

The Worst Problem.

The propeller clearance problem is quite the most awkward trouble in hydro-aeroplane design, and it results from the conflicting claims of stability in the air and stability in the sea; the solution has to be a compromise.

From the point of view of air stability, the propeller thrust should not be higher than the centre of resistance and from the point of view of sea stability or sea-worthiness the centre of gravity should not lie too far above the meta-centre, and, to make matters worse, propeller diameter should be as large as it can possibly be.

Many makers reduce the propeller diameter, thus losing efficiency and gaining sea-worthy qualities which their machines would not otherwise possess.

The danger of placing the propeller thrust high up is that in case of engine failure the tail tends to drop, thus placing the machine in a dangerous position.

A possible way out of this might be to have the centre of gravity placed forward of the centre of pressure and have a negative angle tail which, during flight, has the propeller draught blowing on the top of it, but on the stopping of the engine the tail would tend to rise and so counteract the tail-dropping tendency.

Other points in design which suggest themselves are the following:—Firstly, with regard to the engine, the power plant should be enclosed, and, although it is certain to be heavier, it should be of the stationary cylinder type. It should be started from the inside of the machine. No aluminium should be employed, owing to the action of sea-water on this metal.

The pilot and passengers should be high enough off the sea to be quite clear of spray and properly protected from wind.

For manœuvring on the sea, sea rudders should be fitted, and perhaps a sea elevator might be found of use in picking the machine out of the sea quickly. These could be attached to the ordinary controls through the medium of springs, so that a heavy sea will not strain the controls.

If steel tube were used more in the construction, for spars and struts, it would increase the life of the machine.

Stout cables and galvanised steel fittings should be used throughout. No doubt the float will be made of wood until the size increases and allows steel to be used.

The great call of the designer is for more horse-power, a call that can only be satisfied by the use of two or even three units of, say, 100 h.p. each.

A 300-h.p. machine, weighing about 3½ tons, having a speed of about 65 m.p.h. and carrying, say, 5½ lbs. per square foot of lifting surface, should fly in any wind, short of a gale. It should also lift twelve passengers and fuel and oil for four hours. It could be anchored out in a fairly rough sea. If efficiently designed, it could fly with two out of its three engines.

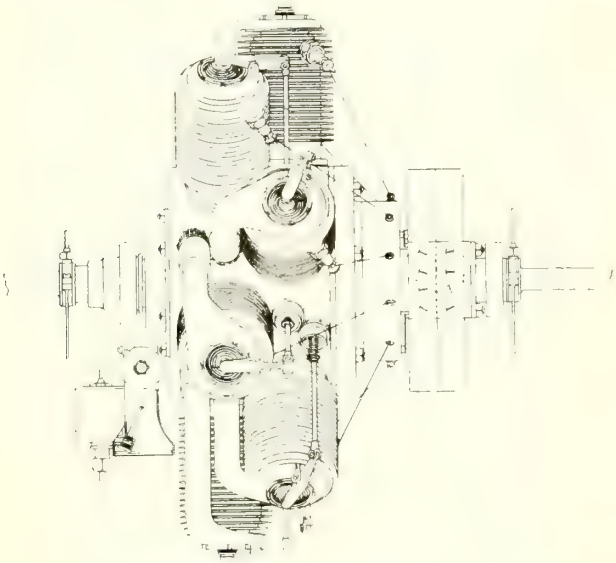
In conclusion, it is evident that owing to our insular position, the development of sea air-craft is more important to this country than to continental nations, and it is to be hoped that our engineers and designers will devote themselves more to this branch of aeronautics in the future.

Aviators and First-aid Equipment.

Messrs. Burroughs Wellcome and Co., whose first-aid Tabloid equipments are now a recognised feature of every aviator's outfit, have just issued a new booklet entitled "Famous Airmen and Their Equipments." The booklet, which is excellently produced, contains a number of portraits of famous aviators and their machines, most of them being excellent likenesses, though a few of them have been spoilt by retouching. Nevertheless, the book remains the best collection of aviators' portraits one has yet seen. In addition it contains practically a history of the evolution of flying, and some excellent simple notes on first aid. The firm announce that a limited number of copies of this book are available for distribution gratis and post free to applicants writing Burroughs Wellcome and Co., at 12, Snow Hill Buildings, London, E.C., and mentioning The Aeroplane.

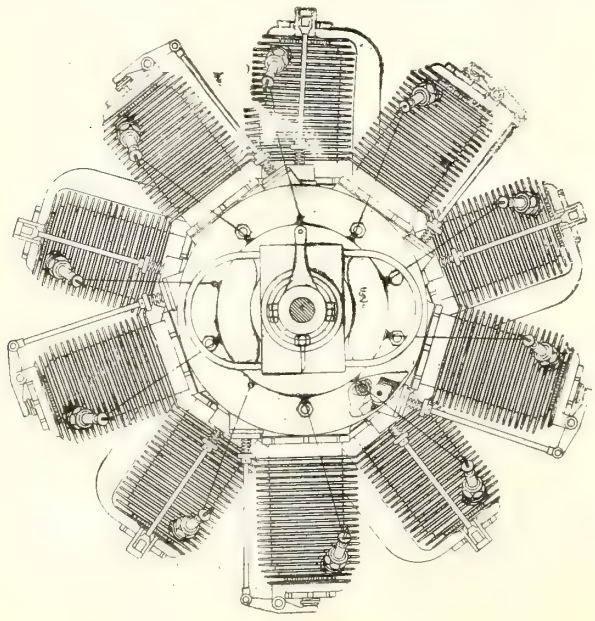
The Gyroscopic Motor.

Some time ago it was noted that a British rotary engine was under construction at Cardiff. The following description is taken from the report of Mr. J. R. Montague Stanfield, the general manager and engineer of the syndicate which is producing the engine.

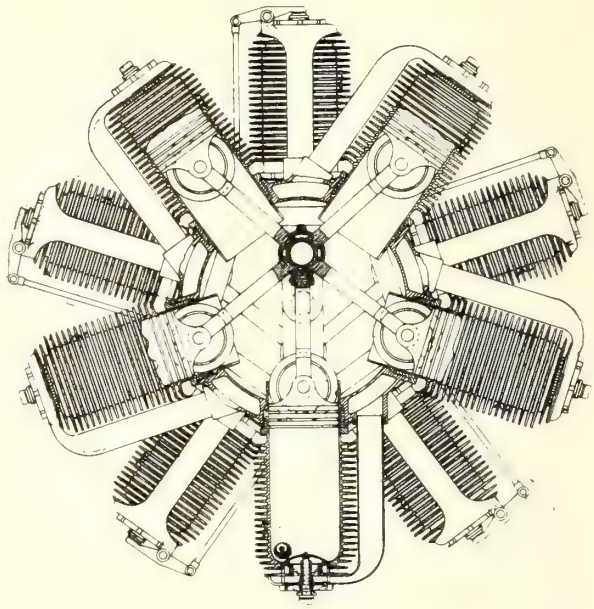


Side view of the Gyroscopic Motor.

It is claimed that this engine develops greater horse power than any other type of rotary engine of the same capacities. The reason for this is that whereas the general practice of all types of rotary engines is to hold the crank shaft stationary and to revolve the cylinders at high speed, the Gyroscopic engine revolves both members, viz. :—The crank shaft in one direction and the crank case and cylinders in the opposite direction, thereby minimising the speed on the crank case and cylinder members, and reducing the losses due to air resistance at high speed. It is an acknowledged fact that it is practically impossible to get a speed on an engine with the crank shaft fixed and the crank case and cylinders revolving greater than 2,000 r.p.m., but on the Gyroscopic engine it is possible to get a speed of 2,000 r.p.m. on the crank case and cylinders,



Magneto end of the Gyroscopic Motor.



Connecting Rod and Crank Arrangement of the Gyroscopic Motor.

and 2,000 r.p.m. on the crank shaft, giving a total speed of 4,000 r.p.m. so far as the effect of the driving impulses is concerned.

On the present design there are 10 cylinders, with a bore of $3\frac{3}{4}$ in. and a stroke of $5\frac{1}{4}$, which, according to R.A.C. rating on areas, will give 150 h.p. for a total weight of approximately 150 lbs. This compares favourably with the best-known type of aeroplane engine, viz., the Gnôme, which has 7 cylinders, with a bore of 4.3 in. and a stroke of 4.7, developing 50 h.p. for 156 lbs. It is to be noted that on areas the Gnôme works out at over 90 h.p.

The double-motion rotary engine is practically free from vibration, due to the fact that there is no fixed member to take up any rigid thrust. The engine lends itself particularly to aeroplane work, as it permits the use of two direct driving propellers, which can be situated in the same plane either directly behind one another or one either end of the engine with the blades set naturally in opposite pitch, or, if found more efficient, two propellers can be used, not in the same plane, but one either side of the engine, driven by suitable chains or gearing. It is claimed that the very fact of two members revolving in different directions will have a steadying effect on the aeroplane.

The general design of the engine is very simple, neat, and clean, giving quick access to all working parts, and minimising the cost of renewals. The method of staggering the cylinders to accommodate the induction pipes and tappet rods is a particular feature. Other features of the engine are the patent arrangements for locking the connecting rods and the master rod to the crank pin, the roller bearing on the gudgeon-pin in the piston, which greatly minimises the piston friction due to centrifugal action set up by the cylinders revolving, the compound balance valve in the heads of the cylinders which is so arranged to counteract the centrifugal action set up due to rotation of the cylinders, which under ordinary conditions would have a tendency to close the valves, and the neat method and suitable arrangement to accommodate the magneto and distributor for firing charges in the cylinders.

It is claimed that the two members revolving in different directions has the effect of giving a balanced gyroscopic action to the aeroplane. It will be readily appreciated that this is good, as with the ordinary type of engine with one propeller revolving in one direction a large gyroscopic action is set up which adds to the difficulties of the pilot.

The arrangement of the two magnetos set back to back is particularly neat, and calls for special attention. The great point of arranging the magnetos in this way is that the field magnets act as a fly-wheel on the crank shaft which balances

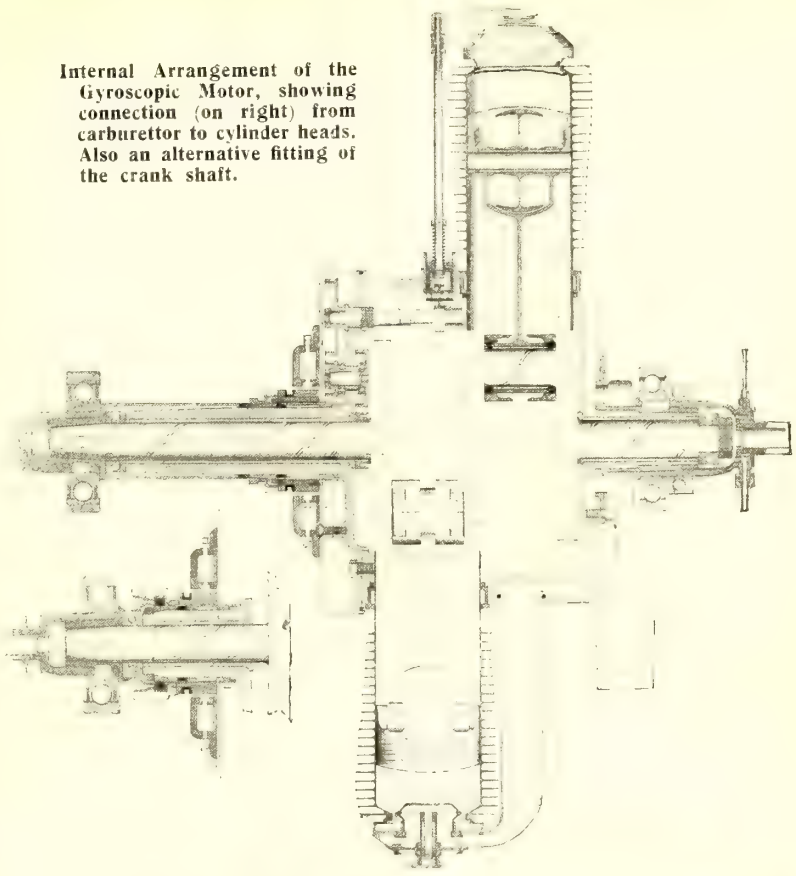
the weight of the cylinders and crank case members, thereby getting a well-balanced engine without the use of the ordinary fly-wheel.

Unlike the ordinary type of rotary engine, it is quite an easy matter to fix a silencer to the double-motion engine owing to the special arrangement at the cylinder heads. It will be readily seen that this is an important factor for military purposes.

Last week Mr. Stanfield brought a small model of the engine with him to London and demonstrated it to a number of people interested in aviation. The model has three cylinders of 2-in. bore by 2-in. stroke, and was designed for motor-cycle work, yet it gives quite big power for its size. It is fitted with two propellers of 4 ft. 6 in. diameter, which it turns at something like 1,000 r.p.m., giving a pull which seems about equal to that of the old 25-h.p. Anzanis, except when they were tuned by a first-class man.

The balanced gyroscopic action was most marked, and the absence of vibration was fully demonstrated by Mr. Stanfield, who entertained quite a large and interested crowd at Hendon on Saturday by supporting the engine on his knees while it was running at top speed. The numerous aviators present seemed much taken by the possibilities afforded by fitting two propellers running in opposite directions.

A full-sized engine with steel cylinders will be ready for its tests in a short time, and so far as one can judge from the designs, and from the running of the small model, it should give an excellent account of itself. At any rate, it is an exceedingly promising idea, and one which is very well worth working out to ultimate success.



Internal Arrangement of the Gyroscopic Motor, showing connection (on right) from carburettor to cylinder heads. Also an alternative fitting of the crank shaft.

Concerning Dopes.

Jenson and Nicholson, Ltd., varnish and japan manufacturers, Goswell Works, Stratford, E., write:—"Re Dopes and Doping. Your article by Mr. A. J. A. Wallace Barr has been of intense interest to us. For some considerable time past we have been experimenting with new chemical compositions, and we are inclined to believe that we have nearly solved the problem, which is of such far-reaching importance to aviators and manufacturers. The substance most suitable for your purposes must be absolutely damp and corrosion-proof, pliable to prevent chipping when exposed to hard knocks, and fireproof to be impervious to any stray spark. We shall be pleased to supply your readers with free samples sufficient to cover a plane, and an entirely different composition to treat the metal and wooden parts of any aircraft, to prevent corrosion and rust, if they will apply to us mentioning the purpose for which such samples are required.

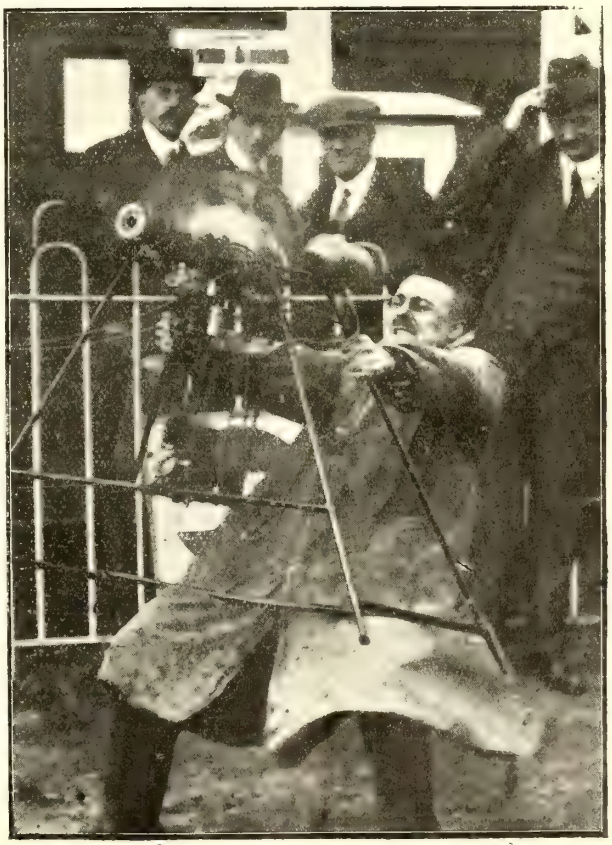
"We quite agree with Mr. Barr that such dopes must form an impervious metallic elastic film over the fabric treated; on the other hand, we would point out that to ensure efficiency such dopes should be applied in the course of manufacture, thus preventing invisible disintegration which can hardly be perceived with the naked eye. A metallic dope will effectually prevent the spreading of fractures on the plane; anyhow it will afford the operator sufficient time to descend and thus save him from the fatal accidents which have been so frequent of late. The main point when sagging does take place is that the dope should be sufficiently plastic to prevent fractures. We do not advocate patched fabrics. Such makeshift repairs are far too flimsy to trust a human life upon."

Flights to the Public Danger.

The attention of the Committee of the Royal Aero Club has been drawn to the fact that certain aviators have on various occasions flown at a low altitude over the people assembled in the enclosures at the Hendon Aerodrome, and at the Committee meeting on the 1st inst. it was decided to communicate with the proprietors of the Aerodrome on the matter. Much better have warned the aviators (or aviator).

Kite and Model Aeroplane Association.

The Committee of the Royal Aero Club has appointed the Kite and Model Aeroplane Association the authority to govern models in this country for the year 1913.



Mr. Stanfield demonstrating the model of the Gyroscopic Motor.

The Week-End at Hendon.

The flying at Hendon on Saturday was extremely good, the weather being perfect throughout the day. During the morning Lieut. Parke, R.N., arrived from Brooklands, doing a test flight on the Handley Page monoplane which Mr. Petre flew through London from Barking some weeks ago. Being now on the active list of the Navy, Mr. Parke was unable to take part in the competitions, but the machine's bird-like appearance caused a large amount of interest while standing by the enclosures. Also, early in the day, Mr. Grahame-White flew over to Watford on the 70-h.p. Farman, taking two passengers with him and returning with one passenger just in time to compete in the speed handicap himself.

The final of the speed handicap provided a splendid finish, being won by Mr. Turner on a Grahame-White biplane with 2min. 39sec. start. Mr. Grahame-White on the 70-h.p. Farman, with Mr. Gates as passenger, was second with 57sec. start; and Mr. Noel on the 80-h.p. Farman was third with 37sec. start, the three crossing the line inside 17sec., which shows that the handicapper, Mr. Reynolds, has now estimated the machines very close to their real speeds. Mr. Turner and Mr. Grahame-White owe their positions entirely to their wonderful cornering, for Mr. Noel's machine was distinctly faster on the straights, but does not take corners so sharply. Mr. Desoutter on the 50-h.p. Blériot was fourth from scratch 27sec. behind Mr. Noel.

Mr. Hall on his 50-h.p. Blériot flew well in the first heat, but his engine was not pulling, and the machine was flying distinctly tail down. In the second heat Mr. Sabelli shed a valve rod right at the start, but fortunately it got clear of the machine without doing any damage, and he flew the whole distance on six cylinders, his speed being exactly the same as Mr. Grahame-White's on the 70-h.p. Farman, which gives one a very good idea of the real speed of the little Hanriot. Mr. Pickles on the 35-h.p. Caudron in the same heat could not quite qualify for the final, but came very near it.

In the bomb-dropping competition Mr. Turner won with an average of 23 ft. from the mark, dropping three bombs from 300 ft., and he scored a "bull" with his second shot. Mr. Pickles, who was actually second, was disqualified for dropping a bomb from less than 300 ft., so that the second prize went to Mr. Noel, whose average was 108 ft., and Mr. Hall was third with an average of 218 ft.

During the afternoon some very fine flights were made by M. Galy on the 45-h.p. Caudron biplane, and Mr. Brock was flying excellently on the little 35-h.p. Deperdussin.

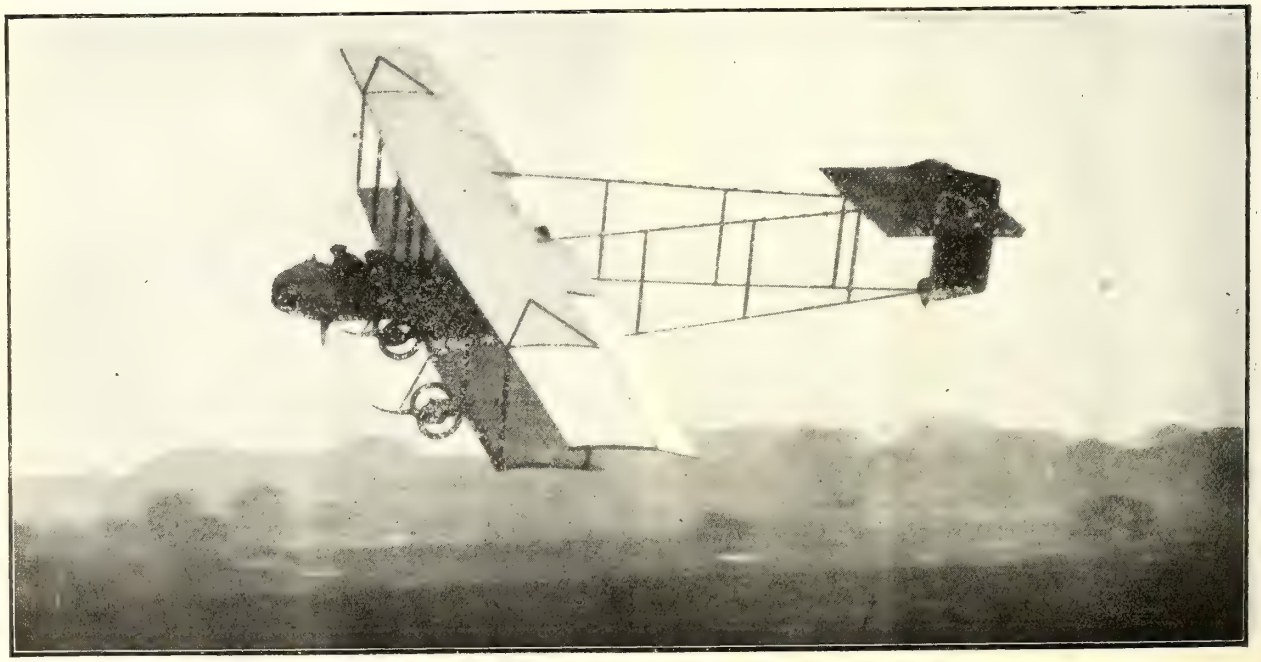
The Sunday Display.

On Sunday the weather was absolutely perfect for flying, though just a trifle misty at times. Early in the day Mr. Grahame-White again took the 70-h.p. Farman to Watford, and came back with two passengers on board. Mr. Noel on the 80-h.p. Farman, generally with three on board, and Mr. Turner on the 50-G.W. biplane, were carrying passengers from two o'clock till dark.

Considerable interest was caused by the remarkable flying of the bird-like Handley Page monoplane, Lieut. Parke, R.N., flying for some hours, and taking up various passengers, among them being Mrs. Stocks and Miss G. V. Hill, of Richmond. Mr. Sonoda, for whom Mr. Handley Page built a biplane which "discontinued" somewhat brusquely last week, was also a passenger on the monoplane. The machine apparently comes very near to flying herself and banks at the corners without any apparent assistance.

Lieut. Chinnery and Mr. Brock were out on the 35-h.p. Deperdussin, both flying well, and M. Galy, on the 45-h.p. Caudron, took up several passengers. Mr. Pickles on the 35-h.p. Caudron, took up Capt. Tyrer as passenger, the machine apparently lifting the double weight quite easily. Mrs. Stocks flew several good circuits on the 35-h.p. Blériot. Mr. Travers, as usual, performed excellently on the 70-h.p. Farman, and altogether visitors had a very fine show, for there was practically a continuous stream of machines past the enclosure for several hours on end.

There is naturally considerable feeling at Hendon about the Royal Aero Club's notice, which has been printed in several outside papers to the effect that the committee communicated with the proprietors of the Hendon Aerodrome on the subject of various pilots flying low down over the enclosures. The absurdity of the committee's action is, of course, obvious, for over and over again both Mr. Grahame-White and Mr. Gates have warned various pilots against this practice, and it should be particularly noted that none of the Grahame-White pilots ever fly over the enclosures at all, except when an east wind compels them to come straight in over the sheds in order to land head to wind, and then they do so at a good height. There are only two methods of dealing with this particular malpractice; one is for the Aero Club to withdraw the offending pilot's certificate after due warning, and the other for the officials of the Royal Aero Club who are in charge of the competitions at Hendon to refuse to allow pilots to start in those competitions if they have previously offended in this particular way. Short of using brute force the proprietors of the Aerodrome have no method of preventing pilots from flying where and how they like, and if they did prevent an offender by force of arms from taking his machine out, they would probably be liable at law for obstructing him in the exercise of his legal rights. Really the



A STUDY IN BANKING.—Mr. Grahame-White and Mr. Gates cornering on the 70-h.p. Farman, on Saturday.

committee of the Aero Club, considering the number of lawyers connected with it, ought to know better. At any rate, there was no need to communicate with the outside Press on the subject, as such an action is calculated to frighten people from going to the only place near London where they can be sure of seeing really good flying in almost any weather and a variety of machines. The club's action is scarcely calculated to popularise aviation in this country.

The Royal Aero Club.

At the Committee meeting, on the 1st inst., the following new members were elected:—Neal Doherty, Lieut. Alan Geoffrey Fox, R.F.C., G. F. Pretyman, Albert Eustace Short, Hugh Oswald Short, and G. W. Young. Total membership to date, 1,441.

The following aviators' certificates were granted:—302, Vivian Hewitt (Blériot monoplane, Rhyl); 303, Capt. Charles Erskine Risk, R.M.L.I. (Short biplane, Central Flying School, Upavon); 304, Lieut. Ivon Terence Courtney, R.M.L.I. (Short biplane, Central Flying School, Upavon); 305, Capt. Edward Leonard Ellington, R.H.A. (Farman biplane, Sopwith School, Brooklands); 306, Victor Yates (Blériot monoplane, Mr. Fowler's School, Eastbourne); 307, Lieut. Hugh Fanshawe Glanville, West India Regt. (Bristol biplane, Bristol School, Brooklands); 308, Lieut. Leslie Da Costa Penn-Gaskell, 3rd Norfolk Regt. (Bristol biplane, Bristol School, Brooklands); 309, Capt. Herbert Creagh MacDonnell, the Royal Irish (Bristol biplane, Bristol School, Brooklands); 310, Arthur Edward Geere (Vickers monoplane, Vickers School, Brooklands); 311, 2nd Lieut. Dermot Roberts Hanlon, R.G.A. (Bristol biplane, Bristol School, Brooklands); 312, Lieut. Felton Vesey Holt, 52nd Light Infantry (Bristol School, Brooklands); 313, Capt. George Ralph Miller, R.F.A. (Bristol biplane, Bristol School, Brooklands).

The aeronaut's certificate was granted to: 29, E. Fuld, subject to the sanction of the Aero Club of Germany.

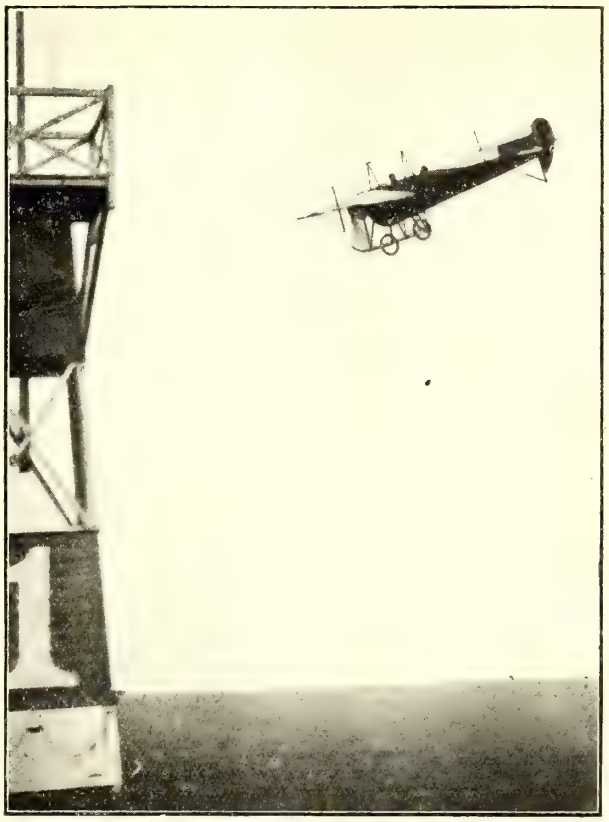
British Altitude Record.—The report on the flight made by Mr. G. de Havilland on Salisbury Plain on August 12th, 1912, was considered, and it was unanimously resolved to accept the altitude attained of 10,500 ft. as a British record. Mr. de Havilland made this record on B.E.2, designed and manufactured by the Royal Aircraft Factory, fitted with a 70-h.p. Renault motor, and was accompanied by Major F. H. Sykes, Commandant, Military Wing, Royal Flying Corps.

A Warning.

Handley Page, Ltd., notify that the following articles were stolen from the Handley Page monoplanes at Brooklands:—A Chauvière propeller, 2.50 metres diam., 1.55 metres pitch, No. 7627 marked on boss; the boss for same; the carburetter, magneto, and front nose piece of Gnome engine. Aeroplane constructors are warned against purchasing any of these parts, and the person who took them is strongly advised to replace them in the shed if they are still in his possession, otherwise he will probably find himself in a very unpleasant position before many days are over.

More About Helmets.

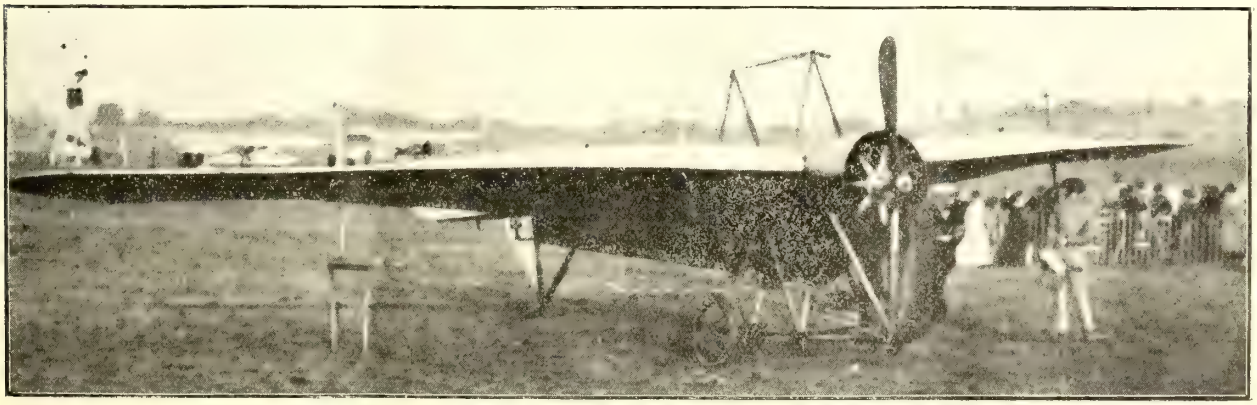
A helmet which is deservedly popular in this country and abroad is the Roold, for which the General Aviation Contractors are the sole concessionnaires in this country. This helmet, which is considerably lighter in weight than the standard military helmet, is composed of two shells made of a composition of cork and gutta-percha, between which is a packing of metallic fibre, making the helmet completely shock-absorbing and extremely strong. The helmet is quite waterproof, and stands a large amount of hard wear. It is used by many of the leading aviators in France and in this country, and those who were present at the Military Trials on Salisbury Plain will remember that M. Prévost never flew without his helmet, which was a Roold. After numerous tests by the French army the Roold helmet has been adopted as the official head-covering for the Army pilots. The British Government has also recently purchased a number for the use of officers in the Royal Flying Corps.



Lieut. Parke, R.N., and Mr. Sonoda, the Japanese aviator, on the H.P. Monoplane.

Our Ambassador Extra-ordinary.

It is reported that on Saturday last Mr. Bryce, the British Ambassador at Washington made a flight of 25 minutes with Mr. Starling Burgess, on a biplane, at Manchester, Mass. Mr. Bryce has always been noted for his broad views on life in general, but it may not be an impertinence to suggest that his outlook has been considerably extended.



The Handley Page monoplane, which attracted so much atten tion at Hendon last week-end.

The Week's Work.

MONDAY, September 30th.

R.F.C. Central Flying School.—Moderate south-westerly wind; misty early morning, but clear by 6.45 a.m. Flights on Avro biplane 404, Major Higgins twice 10 mins. and one 20 mins.; Lieut. Hartree 15 and 10 mins.; Capt. Becke, 8, 10, and 15 mins.; Lieut. Abercromby 9 and 15 mins.; Capt. Salmond 10 and 24 mins.; and Capt. Alston twice 5 mins. On Avro 406, Capt. Fulton, with Capt. Risk, 18 mins., with Lieut. Smith-Barry 18 mins., with an air-mechanic four times for 5 mins., and once 5 mins. flight alone; Capt. Risk two 5 mins.; Lieut. Smith-Barry 8 mins. and 20 mins.; Air-mechanic Higginbottom two 5 mins. and one 10 mins.; Lieut. Abercromby 10 mins.; Capt. Salmond 5 mins.; Capt. Alston 22 mins.; Lieut. Hartree 15 mins.; and Lieut. Waldron 5 mins. On Maurice Farman 403, Lieut. Waldron 10 mins.; Lieut. Longmore, R.N., 5 mins., and Lieut. Shepherd 5 mins. flight. On Short 402, Major Gerrard, R.M.L.I., 5 mins. and 7 mins. flights, with Assistant Paymaster Trewin 15 mins., with Lieut. Pepper four mins. Lieut. Winfield-Smith 8 mins; Lieut. Lushington 13 mins.; Lieut. Courtney 12 mins.; Lieut. Hubbard 12 mins.; and Lieut. Anderson 13 mins.

Hendon.—Grahame-White School opened at 3.50 p.m. Lieut. Allen first out on No. 7 biplane and did good straights. Messrs. Wilson, Fuller and Howard-Wright also doing straights. Later Messrs. Allen, Wilson and Fuller each took five minutes' turn on No. 7. At 5.30 Mr. Howard-Wright out with Instructor Noel for 15 mins.

W. H. Ewen School out at 4.30 p.m., when M. Baumann had out monoplanes Nos. 1 and 2. Lieut. Eric Conrat and Mr. H. James splendid progress in straights and landings on No. 2 monoplane. Mr. L. Russell and Mr. Lawford good practice on monoplane No. 1. Mr. Ewen had 35-h.p. Caudron out, and after short flight handed machine over to Capt. Chamier and Mr. J. H. James, who both put in some good flying practice. Later Mr. J. H. James flew fine circuits, while Capt. Chamier and Dr. Edmunds put in some good straights. Mr. Ewen finished the day's work with nice flight.

At Deperdussin School. In evening Messrs. Whitehouse and Brock each did three turns on Taxi No. 1, when latter broke skid. Mr. Spratt and Lieut. Tucker put in several very good straight flights on Deperdussin No. 4. Mr. Brock was also out doing circuits on the same machine.

At Bleriot School, M. Gandillon had L.B.2 to himself during afternoon and did good straights. M. Teulade did straight flight on No. 3. M. Gratien put in a roll on No. 1.

At Blackburn School, Mr. H. Blackburn, late of the Walton-Edwards Co., now chief pilot here, made trial flight on No. 3 machine. At 4 p.m., wind having died, Messrs. Scott, Spink and Buss out for practice. Mr. Scott made four straights, landing after fourth flight with engine off. Both Mr. Spink and Mr. Buss good long trips.

Brooklands.—Heavy rain most of the day.

At Hanriot's, in evening, Mr. Sabelli out on single-seater flying excellently for nearly ¾ of an hour; weather conditions none too pleasant, but he made large circuits over country.

At Bristol School in morning. Mr. Merriam out testing, then up with Capt. Williams (prospective pupil). Mr. Bendall up twice with Capt. Pigot. Mr. Merriam up behind Lieut. Ali, afterwards taking up Lieut. Loultcheff. Capt. Styles, Lieut. Carmichael, Mr. Payze, and Mr. "Darracq," all flying.

At Vickers School, Mr. Knight out early on No. 2 testing, then gave machine over to Capt. Stott, who put in good straights. Mr. Knight then out on Farman doing useful circuits. Mr. MacDonald also out on No. 5 trying new wings.

Waterloo (Liverpool).—Mr. Hardman did succession of figure eights on the brevet course, planing down to mark in fine style. Unfortunately, flight not officially observed.

Windermere.—"Water Hen" quite busy, first with Mr. Adams at lever and a succession of passengers, afterwards with Lieut. Trotter as pilot. Towards evening Lord Rayleigh, of the Government Advisory Committee, visited the sheds with a party including Mr. Balfour's sister, Lady Rayleigh. Lieut. Trotter gave them half an hour's exhibition on "Water Hen."

TUESDAY, October 1st.

R.F.C. Central Flying School.—Wind rather choppy. On Avro 404, Capt. Fulton with Air Mechanic Hodgson 20 mins.; Lieut. Hartree twice 15 mins.; Capt. Salmond 10 mins.; Major Higgins 15 mins.; Capt. Alston 15 mins.; and Lieut. Abercromby 15 mins. On Avro 406, Major Higgins 10 mins.; Capt. Becke 5 and 15 mins.; Lieut. Smith-Barry 10 mins.; Lieut. Abercromby 15 mins.; Capt. Alston 5 mins.; Capt. Risk 10 and 15 mins.; and Capt. Salmond 15 mins. On Short 402, Major Gerrard, R.M.L.I., with Lieut. Pepper, 14 mins.; Lieut. Lushington 6 and 12 mins.; Lieut Courtney 9 and 11 mins.; Lieut. Winfield-Smith 5 and 4 mins.; and Lieut. Anderson, 13 mins.

Farnborough (R.F.C.).—Major Moss several fine flights on Maurice Farman 207. Lieut. Playfair rolling on Biplane 205. Major Burke on biplanes 204 and 205. Mr. de Havilland on biplane 206 in very tricky wind. During afternoon Mr. de Havilland doing some fine flying on "B.E.2," handling machine like a toy. In evening Lieut. James, with Sergt. Bateman as passenger, on 205, fine flight in rain. Mr. Sopwith out on new Short tractor biplane, several circuits.

Hendon.—Grahame-White School opened 6.40 a.m., attended by Lieut. Allen, Messrs. Wilson, Clarke, Fuller, and Howard-Wright. Lieut. Allen with Instructor Turner for instruction in circuits on No. 5 biplane, also other pupils.

At W. H. Ewen School very little work on account of wind. In evening Mr. Sydney Pickles on 35-h.p. Caudron, after which Mr. J. H. James put in nice flight, handling machine confidently despite strong wind. At 200 ft. he described figure eight and landed in perfect style. M. Galy was also doing good flying on 45-h.p. two-seater Caudron biplane at 600 ft. and showing machine to be very fast.

At Deperdussin School. In morning Lieut. Tucker, Mr. Spratt and Lieut. Bellairs out on Deperdussin No. 4, the two former put in ten very good straight flights, but the latter after one good flight threw a tyre. Mr. Spratt makes excellent progress. Mr. Brock doing circuits on Deperdussin No. 4. In evening Mr. Phelps put in two useful trips on Taxi No. 1, but was forced to come in owing to rainstorm.

At Bleriot School, M. Gratien only out this day.

Blackburn School opened at 7.50 a.m. Mr. H. Blackburn testing. Mr. Scott then did straights, Messrs. Buss and Glew finishing morning's work with rolling practice. Late in afternoon Mr. Scott put in two straights, whilst Mr. Buss rolling on No. 1 machine.

Brooklands.—Continuous heavy rain throughout day. Aerodrome looking fit place for water-planes.

At Vickers School, Mr. MacDonald out on No. 6 early testing new wings.

At Bristol School in morning, Mr. Merriam out first, trying conditions, then with Captain Pigot, Captain Styles, Lieuts. Carmichael, Loultcheff, Captain Boger, and Mr. Payze, all on straights, too bumpy for circuits. Mr. Merriam up again with Captain Pigot, and twice behind Lieut. Ali. In evening Mr. Bendall alone and with Capt. Pigot. Mr. Merriam testing, and afterwards with Lieuts. Pretyman and Ali.

WEDNESDAY, October 2nd.

R.F.C. Central Flying School.—Weather same as Monday and Tuesday. On Avro 404, Major Higgins 10 mins.; Lieut. Abercromby 10 mins.; Capt. Alston, 5 mins.; Lieut. Hartree 10 mins.; and Lieut. Smith-Barry 15 mins. On Avro 406, Capt. Becke, 15 mins.; Capt. Risk, 7 mins.; Capt. Salmond 7 mins.; Major Higgins 5 mins.; and Lieut. Hartree 7 mins. On Maurice Farman 411, Lieut. Cholmondeley 15 mins.; Lieut. Waldron 15 mins.; Lieut. Martyn 7 mins.; Lieut. Longmore, R.N., with Lieut. Young, 7 mins.; Major Trenchard 11 mins.; and Lieut Shepherd 6 mins.

Farnborough (R.F.C.)—Early Lieut. Mackworth out on biplane 205, several flights. During afternoon Mr. de Havilland on "B.E.2," flying in strong wind and taking passengers. Airship "Delta" long flights, taking five passengers. In evening Lieut. Longcroft twenty minutes' flight on 204, also three ten-minute flights. Lieut. Mackworth left for Salisbury on 205. The Count de Montalent one hour's flight on new Bréguet, then handed same over to Captain Raleigh, who made several fine flights. Mr. Sydney Pickles on 45-h.p. Caudron biplane, demonstrating before Factory officials. Capt. Darbyshire out on 205.

Hendon.—Pupils unable to get in flying on account of 30-mile wind. Mr. Sydney Pickles, however, put up capital exhibition flight on 35-h.p. Caudron for benefit of some Scottish visitors. After several circuits at 500 ft. finished with a beautiful spiral glide.

Brooklands.—Weather not fit for much flying.

At Vickers School, Mr. Knight first out on No. 2 for test flights, then handed over to Capt. Stott and Lieut. de la Ferté, and later to Mr. Barnwell.

THURSDAY, October 3rd

R.F.C. Central Flying School.—Wind very strong, south-westerly. Clear but frosty. No flying during morning. In evening wind not so strong, but very bumpy. On Avro 404, Lieut. Abercromby 10 mins.; Capt. Salmond 6 mins.; and Capt. Alston 5 mins. On Avro 406, Capt. Fulton 5 mins.; Capt. Becke 6 mins.; Capt. Risk 23 mins.; Air Mechanic Higginbottom 6 mins.; and Lieut. Hartree 15 mins., ending with a fine spiral glide. On Short 402, Major Gerrard, R.M.L.I., 7 mins.; Lieut. Hubbard 6 mins.; Lieut. Winfield-Smith 5 mins.; and Lieut Lushington 5 mins.

Farnborough (R.F.C.)—Mr. Pickles again demonstrating on Caudron, and did hour test flight. Airship "Delta" several trips. Lieut. Longcroft on biplane 204. Capt. Raleigh on new Bréguet, several good flights; then Lieut. Wanklyn started for flight, but had misfortune to turn machine over through getting tail too high, and completely wrecked it; fortunately pilot escaped with a shaking. Mr. de Havilland out on "B.E.2" with passengers. In evening Mr. Cody out on military biplane testing new 100-h.p. 6-cylinder Green engine, flying with usual skill. Lieut. Longcroft on biplane 204 30 minutes' flight with Air-mechanic Bush as passenger. Captain Raleigh on second new Bréguet, several flights, one flight taking air-mechanic Wright as passenger. Major Burke starting for flight on biplane 204, in trying to avoid another maching flying overhead, landed in some trees, wrecking machine, pilot happily escaping unhurt. Capt. Reynolds several good flights on Maurice Farman 207. All out till dark.

Hendon.—Grahame-White School opened 3.30 p.m., attended by Messrs. Howard Wrght, Lieut. Allen, Messrs. Carr, Holscher, Fuller and Davies, Lieut. Allen and Major Madocks. Messrs. Howard-Wright and Carr with Instructor Noel on No. 7 biplane. Lieuts. Allen and Small and Mr. Hoelscher doing straights on same machine. Afterwards, Lieut. Allen, Messrs. Fuller and Clark made circuits for about 10 mins. each on No. 5. Major Madocks and Mr. Davies rolling on No. 7.

At Bleriot School, Messrs. Gandillon, Reilly, and Gratien all at work, former doing straights on L.B.2 and Messrs. Reilly and Gratien rolling on No. 1.

Brooklands.—At Sopwith School, in early morning, Mr. Hedley first out on school Farman alone and afterwards giving instruction to pupils—Capt. Salmond, Major Cameron and Mr. Howard Wright—for over two hours.

At Bristol School, at 6 a.m., Mr. Merriam to height of 1,000 ft., to wake pupils who had not arrived. Mr. Bendall then with Capt. Pigot. Mr. Merriam with same pupil and twice with Lieut. Ali. Captains Boger, Gibbon, and Styles and Mr. Payze doing circuits. Lieut. Loultcheff figures of eight. Lieut. Carmichael also figures of eight, nicely. Lieut. Pretyman, first time alone, made two circuits (rather advanced pupil). In evening Mr. Merriam alone, Mr. Payze circuits. Mr. Bendall with Capt. Pigot. Mr. Merriam with same pupil and Capt. Reid. Lieut. Carmichael also flew.

At Flanders, in evening, Mr. Raynham arrived on monoplane from Hendon in nasty wind.

At Vickers School, Mr. Knight first out on No. 2 for test flights, then handed over to Capt Stott and Lieut. de la Ferté, who both put in a lot of useful straights and curves. Mr. Knight then out on Farman doing good circuits. Mr. MacDonald and Capt. Wood out also on No. 6 testing new wings and propellers.

Waterloo (Liverpool).—Mr. Birch did one or two straights, but, finding wind very irregular, brought machine in.

Windermere.—Mr. Adams out flying "Water Hen" to test some slight alterations to the float.

Lady Cyclist (tapping tight fabric over wing): "How well you have them blown up! Does it take much pumping?"

FRIDAY, October 4th.

R.F.C. Central Flying School.—Wind slightly north-east and later dead calm. Misty early morning, but very soon clear. On Avro 406, Capt. Fulton, with Air Mechanic Higginbottom, 13 mins., and 5 mins. alone. Air Mechanic Higginbottom 5 mins and 12 mins. alone; Major Higgins 7 mins.; Lieut. Smith-Barry 10 mins.; Lieut. Abercromby 7 mins.; Capt. Becke two 6 mins.; Capt. Salmond 6 mins.; and Lieut. Hartree 10 mins. On Maurice Farman 411, Major Trenchard 18 mins. and 25 mins.; Lieut. Shepherd 8 mins. and 10 mins.; Lieut. Waldron 20 mins. and 12 mins., reaching great height; Lieut. Martyn 18 mins.; Lieut. Longmore, R.N., with Lieut. Welby, 8 mins.; Lieut. Young 9 mins.; Lieut. Stopford 17 mins.; and Lieut. Cholmondeley 28 mins. On Short 402, Major Gerrard, R.M.L.I., with Lieut. Pepper 17 mins. and 6 mins.; Lieut. Courtney, 11 mins. and 10 mins.; Lieut. Anderson 10 mins.; Lieut. Lushington 5 mins.; Lieut. Hubbard 17 mins.; and Lieut. Winfield-Smith 6 mins.

Farnborough (R.F.C.).—Early Capt. Raleigh several flights on new Bréguet 70 h.p.; then Lieut. Shephard short flights, and in landing damaged chassis. Major Moss and Captain Reynolds each flights on Maurice Farman 207. Then Major Moss took Mechanics Ward, Smith, Hart, and Wilson for flights of ten minutes each. Lieut. Mackworth arrived from Upavon on biplane 205. In evening Capt. Raleigh long flights on Bréguet 211, 100-h.p. Gnome, flying well. Major Moss and Capt. Reynolds several flights each on Farman 207; then Lieut. Herbert short flights on same machine.

Hendon.—Grahame-White School opened 6 a.m. Messrs. Clark and Howard-Wright rolling on No. 7. Messrs. Holscher and Howard-Wright and Lieut. Small with Instructor Turner on No. 5 biplane. Lieut. Allen doing circuits on No. 7. Capt. Halahan, Lieut. Small straights on No. 7. Mr Fuller straights on No. 5. At 7.45 a.m. Mr Wynne went for brevet, passing all tests well, flying steadily at 200 ft., then did altitude test 250 ft. and landed within 20 yards of observers.

At Bleriot School, not much school work possible owing to the number of brevet tests taking place. M. Gratien in engineering a roll across in between two tests was so unfortunate as to lose half his left wing owing to trying conclusions with another Blériot monoplane, which proved the winner. The machine was taken into sheds and fitted with another wing, reappearing next day. [Mr. Desoutter just starting on G. B. Blériot found M. Gratien had swerved right across him. No time to turn or stop, so Desoutter pulled machine clean off ground almost vertically, jumped the other machine, missed Gratien's wing with his wheels by inches, and caught it with his tail skid, landing safely the other side of aerodrome. A wonderful escape from a shocking smash.]

At W. H. Ewen School pupils out at 5.45 a.m., and almost continuous day's work put in. Lieut. Eric Conran on No. 2 monoplane four fine flights in half-circuits. Capt. Chamier and Mr. H. James early morning practice on 35-h.p. Caudron. During the forenoon Mr. Sydney Pickles made initial flight on 45-h.p. Caudron monoplane, after which two flights, in which he showed perfect control. At 12.54 p.m. he started on the monoplane to pay flying visit to Brooklands, where he arrived at 1.10 exactly. After lunch there he put up an exhibition flight impressing the Brooklands pilots with speed of machine. In meantime Mr. Ewen and M. Baumann had pupils hard at work. Lieuts. Bayly and McMullen and Messrs. Russell and Lawford got in good flying on school monoplanes. The event of day, however, was splendid exhibition of circuits and figure eight flying put up by Mr. J. H. James on the 35-h.p. Caudron biplane by which he gained, under the observation of Mr. Richard T. Gates (for the R.Ae.C.) and Mr. Odell and his staff, the £100 prize offered by the International Correspondence Schools. Immediately afterwards same pupil was in air again for brevet tests, which he passed in excellent style, flying most of time at 250 feet on 35-h.p. Caudron. Mr. Pickles returned from Brooklands on Caudron monoplane, having accomplished the return journey against the wind in 17½ minutes. Unfortunately, in taxying back to shed after landing a wheel caught in a rut, and machine stood on a wing-tip after exciting gyrations. Damage done surprisingly small considering force of impact. Dr. David Edmund then flew circuit and figure eight on the 35-h.p. Caudron biplane, after which he started for brevet tests. First half accomplished in excellent style, but had to delay the remainder on account of rising mist. M. Galy out on 45-h.p. two-seater Caudron doing some fine solo flying and passenger carrying.

At Deperdussin School. In morning Lieut. Tucker and Mr. Spratt and Lieut. Bellairs all doing straight flights on Deperdussin No. 4. The two former afterwards did circuits and figures of eight in good style. Lieut. Brock and Lieut. Hooper each rolling on Taxi No. 1. Mr. Brock circuits and figures of eight on No. 4. In evening Mr. Spratt two fine straight flights and figures of eight on No. 4. Mr. Ware also put in useful straights on same machine. Mr. Phelps and Lieut. Hooper making good progress on Taxi No. 2.

Brooklands.—At Sopwith School, in morning, Mr. Hedley out for 20 mins. alone on school Farman, afterwards busy with pupils for an hour and three-quarters. Mr. Hawker then flew well on same machine. In evening, Mr. Hedley out testing, afterwards handing machine over to Mr. Howard Wright, who flew straights in excellent style.

At Hanriot's, in evening, Mr. Sippe and Mr. Sabelli out for about an hour, each on single-seater.

At Martin-Handasyde's, Mr. E. Petre up in morning for about ¾ of an hour, going beyond Chertsey and back over Ripley, the machine climbing rapidly, reaching 3,000 ft.

At Flanders, Mr. Raynham out in afternoon on monoplane. Flying, as usual, a lesson in handling machine.

At Bristol School. In morning Messrs. Merriam and Bendall testing, the latter with Capt. Pigot. Lieut. Carmichael alone, then went for brevet and passed in good style. Lieut. Loultcheff flying well. Mr. Payze circuits, also Capts. Boger, Gibbon, and Styles. Mr. Merriam with Capt. Pigot and Capt. Reid twice, afterwards taking up Lieut. Pretyman. Mr. "Darracq" two circuits. In evening Mr. Merriam testing, Mr. Payze two circuits, Mr. "Darracq" and Capt. Boger two circuits each. Mr. Bendall testing, Lieut. Pretyman three circuits. Lieut. Loultcheff and Capt. Gibbon figures of eight. Mr. Bendall with Lieut. Ali and Mr. Merriam with Capt. Reid and Major Forman (prospective pupil).

At Vickers School, Capt. Wood first out on No. 2 for test flight, then handed over to Capt. Stott and Lieut. de la Ferté, who put in useful practice in straights and curves. Capt. Wood and Mr. Knight also out on Farman, both doing a number of circuits.

Waterloo (Liverpool).—Mr. Birch did complete brevet test flying at 300 ft., and finishing within 38 yards of mark. Again no official observer present. Mr. Hardman out later and did one figure eight, but wind increased to 20 m.p.h.

Windermere.—Lieut. Trotter took "Water Hen" for long practice flights morning and evening.

SATURDAY, October 5th.

R.F.C. Central Flying School.—Fine, clear and calm. On Avro 404, Capt. Risk 20 mins. over to Lark Hill and back, and Capt. Becke 25 mins., also to Lark Hill and back. On Avro 406, Capt. Fulton with Air Mechanic Higginbottom to practice ground, then fetched Major Gerrard, R.M.L.I., to same ground. Then both officers observed Air Mechanic Higginbottom for his brevet, which he took in good style, being in the air 32 mins. altogether. Capt. Fulton then with Major Gerrard back to sheds, and with Lieut. Anderson 6 mins. Higginbottom is thus first Air Mechanic to obtain his brevet at the school. On Maurice Farman 411, Lieut. Waldron splendid flight of 35 mins., reaching 4,800 ft., ending with a fine spiral glide. Lieut. Stopford twice 6 mins.; Lieut. Longmore, R.N., 7 mins.; and Lieut. Young 10 mins. On Short 402, Lieut Lushington 20 mins. and Lieut. Anderson 5 mins.

Farnborough (R.F.C.).—Capt. Raleigh on 100-h.p. Bréguet 211 one flight, broke axle, then started for another flight, not knowing axle was broken. During flight wheel droped off, but pilot made good landing without further damage. Major Moss, Capt. Reynolds, and Lieut. Herbert all flying Maurice Farman 207. Mr. Gordon Bell on new 70-h.p. British Deperdussin monoplane, flying well.

Hendon.—Grahame-White School opened at 10 a.m., in gusty weather. Major Madocks and Mr. Howard Wright rolling on No. 7. Capt. Halahan good straights. Lieut. Allen afterwards circuits on No. 5. Fine racing in afternoon.

At Bleriot School, Mr. Sacchi did straight flight on L.B.3, and Mr. Reilly had No. 1 out taxying.

At Blackburn School, Mr. Blackburn testing. Dr. Christie on No. 3 machine rolling. Mr. Scott two straights. Messrs. Buss and Glew rolling on No. 1 machine.

At W. H. Ewen School pupils out at 9 a.m. when fog lifted. Mr. Sydney Pickles short flight on the 35-h.p. Caudron, after which Capt. Chamier, Lieut. Erie Conran and Mr. H. James each made six straight flights on same machine. These three pupils are flying excellently and ought very soon to increase number of Caudron brevets. Mr. Pickles and M. Galy flying excellently during afternoon exhibitions.

Brooklands.—At Martin-Handasyde's, Mr. Petre out in morning for considerable time over surrounding country.

At Flanders, Mr. Raynham out in afternoon on monoplane giving exhibition of steep banks and spiral glides.

At Sopwith School, Mr. Hedley out for two hours morning and evening with pupils on school Farman. Mr. Hawker flew very well indeed on same machine. Mr. Howard Wright did circuits in very good style.

At Hanriot's, Mr. Sabelli started at 3 p.m. for Hendon, where he arrived 15 mins. later at a height of 3,000 ft.

At Bristol School, in afternoon. Mr. Merriam for exhibition flight, then with Captain Reid, and Major Forman twice. Lieut. Loultcheff and Captain Gibbon took half brevet splendidly. Lieut. Pretyman two circuits.

At Vickers School, Mr. Barnwell first out on No. 2, then handed over to Capt. Stott, who seems to be making rapid progress. Mr. Barnwell also out on Farman putting in many excellent circuits.

SUNDAY, October 6th.

Hendon.—Grahame-White School opened 8 a.m. Major Madocks rolling on No. 7, afterwards doing straights with instructor on No. 7. Lieut. Small and Mr. Wilson out on No. 7 doing straights. At 8.40 a.m., Lieut. Allen on brevet machine doing circuits under Instructor Noel, afterwards passing tests for brevet. The pupil flew well in first test at average of about 120 ft., landing 25 yards from observers. In second test he flew at 200 ft., landing on mark.

W. H. Ewen School out early, but pupils unable to start work till 9.15 a.m., when fog lifted. M. Baumann got in some excellent monoplane work, Mr. L. Russell showing great improvement, Mr. Lawford several fine flights with good landings from 20 feet. Mr. Sydney Pickles made short test flight on 35-h.p. Caudron, after which he handed machine over to Capt. Chamier, who made six fine straights, keeping biplane absolutely steady and landing well. Lieut. Eric Conran and Mr. H. James thereafter each made several fine flights on the same machine. During afternoon, fine exhibition flying by Messrs. Galy and Pickles, on biplanes.

Blackburn School started with rolling practice by Messrs. Spink, Buss, Glew and Dr. Christie. Mr. Scott made straights practising landing. Mr. H. Blackburn made a short flight.

Brooklands.—At Sopwith School, Mr. Hedley first out alone on Farman, afterwards handing machine over to Capt. Salmond, who did straights. Later, Mr. Hedley in passenger's seat instructing Major Cameron. In evening, Mr. Howard Wright flying circuits and figures of 8 in excellent style, followed by Mr. Hedley, who took up several passengers.

At Flanders, Mr. Raynham out in afternoon on 70-h.p. monoplane giving excellent exhibition.

At Spencer School, Mr. Spencer kept busy whole afternoon carrying many passengers. In afternoon an amusing relay race was arranged, the winning pair being Mr. Barnwell (Farman biplane) and Mr. Spencer (Spencer biplane).

At Bristol School, in morning. Mr. Merriam alone, then Lieut. Loultcheff went, finished other half of brevet, the first Bulgarian officer to take a R.Ae.C. certificate. In evening Mr. Merriam giving exhibition. Capt. Gibbon solo, then finished brevet tests. Mr. Merriam up with Major Forman and Mr. Hall. Captains Reid, Boger, Lieut. Pretyman, and Mr. Payze flying alone.

At Vickers School, Mr. MacDonald on No. 6, testing with new wings and propellers, all day, with Lieut. Beatty as passenger. Mr. Barnwell flying a great deal on Farman, putting up an excellent show and finally finishing up by winning the relay competition. Mr. Barnwell then out on No. 2 machine for test flight before handing over to Lieut. de la Ferté, who put in many excellent straights and curves.

An Aviation Dance.

A dance will be held at the Central Hall, Richmond, Surrey, on Thursday, the 24th inst., in aid of the National Aviation Fund promoted by the Aerial League of the British Empire. The hall is easily reached from both Brooklands and Hendon, and it is hoped that the inhabitants of these places will make a point of being present. Tickets are priced at 5s., and full particulars may be obtained from the local hon. secretary, Mr. A. J. A. Wallace Barr, 5, North Court Mansions, Richmond Bridge, Twickenham, and early application is advisable.

International Aero Exhibition, Olympia, 1913.

The Society of Motor Manufacturers and Traders has decided to organise an International Aero Exhibition at Olympia, under the auspices of the Royal Aero Club, in February, 1913. Full details will appear later.

A New Polytechnic Course.

The Regent Street Polytechnic has just announced a course of instruction in motor-car and aero engineering under the management of Henry J. Spooner, M.I.Mech.E., A.M.Inst.C.E., M.Inst.A.E., F.G.S. The aeronautic course includes (a) Elementary instruction in aerodynamics; (b) mechanics of aeroplane construction, these two classes being conducted by Mr. L. Blin Desbleds; (c) Lectures on motor-car and aero engines, illustrated by lantern slides, and experiments by Mr. A. Graham Clark, M.I.A.E., A.M.I.Mech.E.; (d) machine construction and drawing; (e) aeroplane drawing and design; and (f) workshop practice in aeroplane work. The last two being conducted by Mr. Graham Wood, who is a certificated aviator. A syllabus of the lectures may be obtained on request from Robert Mitchell, Director of Education, The Polytechnic, Regent Street, W.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. Monday, to ensure insertion.

For the convenience of Advertisers, replies can be received at the office of The Aeroplane, 166, Piccadilly, W.

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SATURDAY NEXT.

Second Autumn Meeting

(Under the Open Competition Rules of the Royal Aero Club.)

THE FOLLOWING RACES WILL BE FLOWN ON

SATURDAY, OCTOBER 12th, 1912, at 3 p.m.

(Weather permitting.)

PROGRAMME.

3 p.m.
Event No. 1.—CROSS COUNTRY HANDICAP.

3.45 p.m.
Event No. 2.—GRAND SPEED HANDICAP.
(Preliminary Heats.)

4.30 p.m.
EXHIBITION & PASSENGER FLIGHTS.

5 p.m.
Event No. 3.—FINAL HEAT OF GRAND SPEED HANDICAP.

From 5.30 p.m.
EXHIBITION & PASSENGER FLIGHTS by C. GRAHAME-WHITE and other Competitors.

THURSDAY AFTERNOON, OCTOBER 10th.
Special Exhibition Flights by well-known Aviators.

SUNDAY AFTERNOON, OCTOBER 13th.
Exhibition and Passenger Flights by Competitors.

COPIES OF THE OFFICIAL PROGRAMME may be obtained from the London Office, 166, Piccadilly, W., on Friday mornings, or will be sent post free on receipt of two penny stamps.

FIXTURES.

Thursday, October 17th...Special Exhibition Flights.
Saturday, ,, 19th...**Hendon Meeting.**
Saturday, ,, 26th...**Second October Meeting.**
Saturday, November 2nd...**November Meeting.**
Tuesday, November 5th...**Grand Illuminated Night Flying and Firework Display (8 p.m.).**

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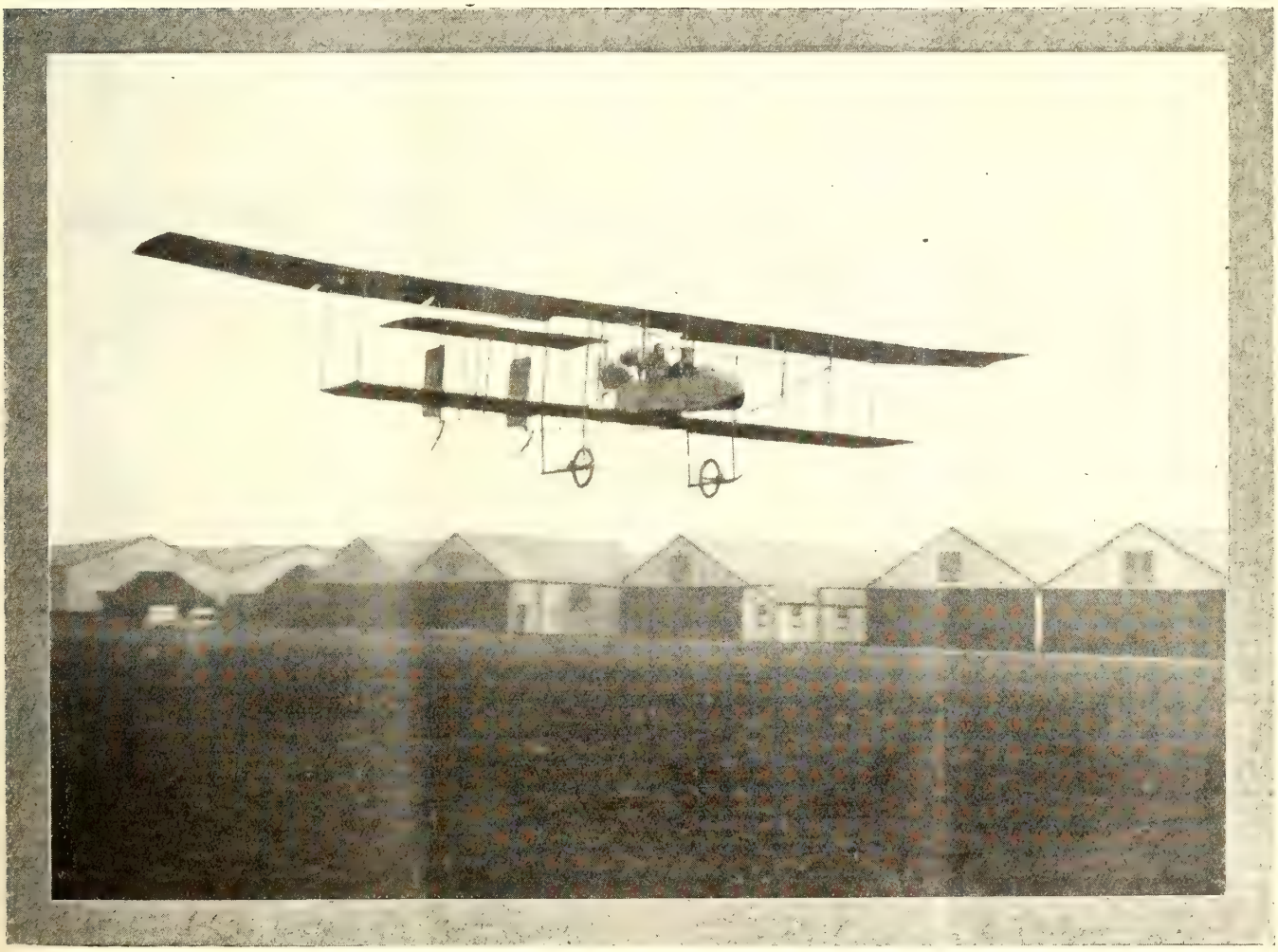
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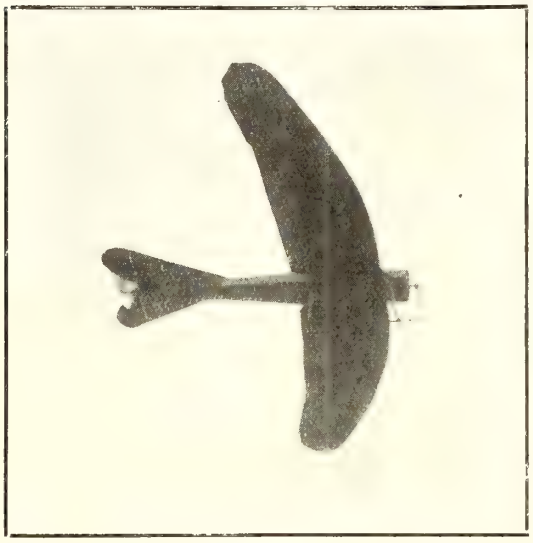
Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, OCTOBER 17, 1912. No. 16.

THE NAVY AT WORK AGAIN.



Lieut. L'Estrange Malone, R.N., with Lieut. Clark-Hall, R.N., as passenger, at Eastchurch, on the rebuilt "Short 38," one of the best flying machines in this country.



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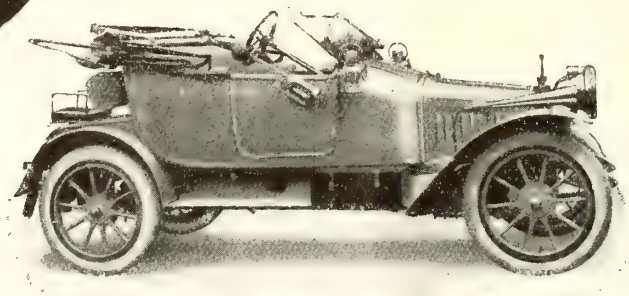
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The War Office and British Manufacturers.

It had been hoped that all question of lack of Government support for the British aeroplane industry had been settled months ago, when Colonel Seely announced officially that it was not the intention of the authorities to build aeroplanes at the Royal Aircraft Factory, so when Mr. C. C. Turner's strongly-worded article appeared in the "Pall Mall Gazette" last week stating unequivocally that the War Office intended in future merely to buy bits and pieces of machines from the manufacturers and have them assembled at the Factory, the writer was strongly of the opinion that Mr. Turner had for once discovered a mare's nest.

This opinion was confirmed by the reply given by Colonel Seely to Mr. Joynson-Hicks in the House of Commons on October 10. The questions and answers deserve to be placed on record. They read as follows:—

ARMY AEROPLANES.

Mr. Joynson-Hicks asked the Secretary of State for War whether the Royal Aircraft Factory which has hitherto existed for experimental purposes is to be utilised for the manufacture of aeroplanes on a large scale; and, if so, what are the reasons for such change of policy?

Colonel Seely: No, Sir. There is no such intention.

Mr. Joynson-Hicks asked the Secretary of State for War if he could state how many aeroplanes are now on order from the War Office, and of the number how many have been ordered from English firms?

Colonel Seely: Twenty-nine aeroplanes are due from British firms. Six aeroplanes have been ordered from abroad through a British firm who will in future manufacture in this country, and one is due directly from abroad.

The Official Policy.

Unfortunately, it now appears that Mr. Turner's information was only too accurate, and that while it is the intention of the authorities to keep to the letter of their announcement that military aeroplanes are to be built by British manufacturers, they intend deliberately to depart from the spirit of that announcement, and merely buy the component parts of machines, which parts are to be "built" to the designs of the Factory officials and are to be assembled at the Factory.

Which is to say that in the eyes of the War Office only the Factory designs are worthy of perpetuation, and that all the practical experiments tried and all the hard-won knowledge acquired by the designers and works managers of the numerous independent constructors in this country are worthless alongside the opinions of the scientific staff of the Royal Aircraft Factory, a staff which, one gathers from those who have suffered, consists largely of that peculiarly modern type of scientist, the product of suburban polytechnics and the London University, in whom the super-abundance of the mathematical x scarcely compensates for the almost complete absence of the common or conversational aspirated "h," and with whom the "h" and not the x is the unknown quantity—the type who can tell to a fraction of an ounce the weight of air deflected by a given plane at any speed, and asks a mechanic to tell him in confidence how the hole is made along the middle of a steel tube.

The official explanation is that our war-planes must not be built complete in an independent factory for fear lest foreign spies should obtain our precious designs. That would be an entirely valid reason if our official designs were even a little ahead of anything produced abroad, and if there were no hopes of an independent constructor in this country producing anything better. But, as was pointed out in these columns some weeks ago, the time is still far distant when we can begin to think of finality either in general design or constructional detail. Consequently, if the War Office allows itself to be led by the nose by its civilian advisers into such a course as that indicated, it simply means that all private enterprise will be smothered, all new ideas will be still-born, and our progress in aviation will depend entirely on the ability of the staff of the Factory to combine the good points of machines produced abroad, in the same way that Mr. de Havilland so ably combined the good points of the Avro, Nieuport, Goupy, Bréguet and Farman in the "B.E." type of machine.

The "Official Explainer."

The "Morning Post," like Browning's St. Praxed's, "ever was the place for peace," so Mr. Massac Buist makes a somewhat half-hearted attempt to explain away the official policy by saying that "Government never helped the motor-car movement . . . so that the aeroplaning movement is really exceptionally favoured. . . . Survival in any industry must be on merits, whereby the fittest remains."

In the first place, Mr. Buist has struck a false analogy. Motor-cars were of no account for national defence in their early days, and even now—some sixteen years after their introduction—they are only beginning to become of military importance. The aeroplane, on the contrary, begins its career as an important factor in naval and military equipment, with the various Governments as the only possible customers. Perhaps Mr. Buist will be good enough to explain where the motor industry and the facile

pen of Mr. Buist would have been to-day if the only customer for motor-cars (the British Public) had told the car-maker of the day that he was a fool (which he was), and that the British Public would not trust him to assemble cars, but only to make parts which the British Public would put together in its own back yard.

The whole point is that a healthy aeroplane industry is necessary to adequate aerial defence, for the Royal Aircraft Factory could never, in time of war, turn out enough machines to keep our Navy and Army supplied.

It takes years to made a competent aeroplane workman, and if the few surviving firms are to exist on turning out bits of stick for the Factory, how are their men to learn to build aeroplanes?

Mr. Buist commits himself to the statement that "there is no intention to cease buying others (aeroplanes) as they may come along and merit investigation. Those that prove better than anything we (presumably, "we" is the Factory, which looks as if Mr. Buist had inadvertently quoted from a letter from headquarters) can evolve will be ordered in quantities as required."

Really, Mr. Buist, is not this a trifle "thin"? Is it not evident on the face of it that when the superior type is evolved by the trusting designer "we" will proceed to copy it and that no further orders will follow? It will be a trifle humiliating for the designer who has turned out a really good machine, and confidingly expects orders for more like it, to receive instead a blue-print of one of his own chassis struts marked "3ft. 6in. about," and an order for a few hundred of these parts only.

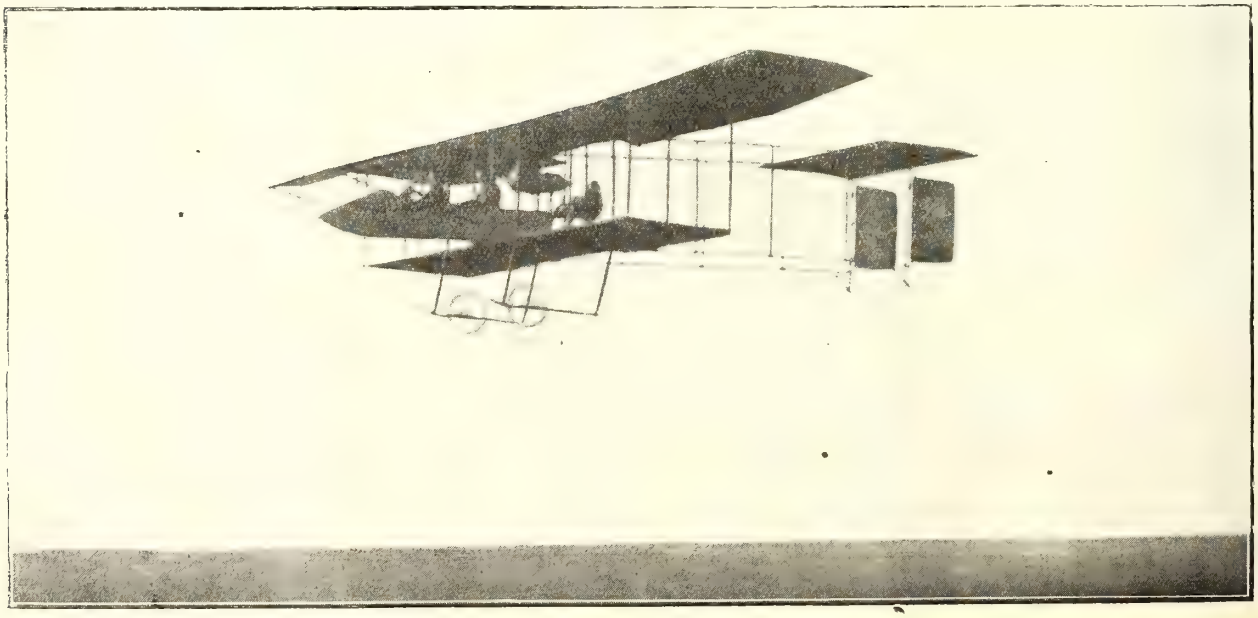
Cold Comfort.

A soldier of considerable experience with whom the writer discussed this question recently expressed the opinion that there was really no need to worry, because, as soon as the Royal Flying Corps really got to work they would smash up so many machines that the Factory would be kept busy repairing them, and would have no time to build, so that orders would have to go outside for complete machines. Unfortunately, while the grass is growing the horse starves, and if we have to wait till the Flying Corps is equipped by the Factory with a sufficiency of machines, it looks as if there will be no poor manufacturers left to accept the crumbs of orders which fall from the specification table of the richly-endowed Factory.

No one can accuse the writer of suffering from any illusions about the British manufacturer. Goodness knows, the British manufacturer as a whole made a sufficiently monumental ass of himself in the Military Aeroplane Competitions to destroy any illusions anyone ever had about him, but the fact remains that some of him can build decent aeroplanes when given a fair chance, and several of him learned so much at the Military Competition that they could turn out something very much better than the "B.E." type if they thought there was a market for them.

Another argument in favour of the new scheme is that, for military purposes, Service aeroplanes must be standardised. Up to a point this is true. They must be nearly of a size, so as to fit standard transport wagons, and they must not be so unusual as to make it difficult for the air-mechanics of the Flying Corps to put them together when unpacked. Also, it would be a good thing if the War Office insisted on the use of standard nuts and bolts, wire, control gear, and so forth, so as to simplify repairs when on active service; but to imagine that all Army aeroplanes are to be as alike as field-guns is not only inane but ridiculous.

Our torpedo-boat destroyers are much of a size, but a Thorneycroft is no more like a Yarrow than a Bréguet is like an Avro, yet each does its work well, and no one is fool enough to suggest that Thorneycroft's should make funnels, Yarrow's deck plating, Wigham Richardson's hull shells, John Brown's rudders, Denny's engine-room floors, and so on, and that the whole jig-saw puzzle should be put together



A side view of the rejuvenated "Short 38" flying at Eastchurch, with Lieuts. Malone and Clark-Hall, R.N., on board. Note the comfortable position of the passenger, sheltered behind the pilot, with plenty of room for sketching apparatus and instruments.

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	" " " "	FINAL	A.B.C. FIRST
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	" " "	FINAL	A.B.C. FIRST
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by civilians at Rotherhithe in order to provide comfortable jobs for the friends of the First Lord of the Admiralty and their relations. Yet that is about what the present brilliant scheme amounts to in substance.

If the aeroplane industry had any cohesion, it would join together in refusing to accept War Office orders for aeroplane parts until a proper arrangement had been made for orders to be placed on their merits with each manufacturer for complete machines which pass specific tests. Unfortunately that is rather too much to expect, so the next best thing is for any constructor who can really build first-class machines to build them and demonstrate their superiority over the Factory product. After which public pressure will compel a change of policy.

Also, much may be done through judicious Parliamentary agitation by such public-spirited members of either House as Lord Hardwicke, Lord Tullibardine, Mr. Joynson-Hicks, and Mr. Sandys. They have already done much for the industry, and to them we must look for assistance at this crisis.

Naval Possibilities for the Aeroplane Industry.

For some time it has been more or less common knowledge in clubs and places where they aviate that the Admiralty is beginning to take an intelligent interest in aviation, and that, with the good, sound common sense, which has made the Navy what it is, the Admiralty policy is to buy machines and find out their good and bad qualities, instead of allowing itself to be spoon-fed by civilian experts. It may therefore be of interest to speculate, so far as a mere journalist can, as to what activity in the Navy means to the aeroplane business.

The fact that hydro-aeroplane work has actually been done at such diverse localities as Weymouth, Portsmouth, Dover, Harwich, and the Firth of Forth is prima facie evidence of activities that are to be, when a sufficiency of water machines and pilots has been acquired, and seems to point to the establishment of a regular chain of naval aeroplane stations round the coast—especially on the East Coast—a plan advocated in The Aeroplane some months ago. Supposing that such stations are established at obvious points, such as Cromarty Firth, the Firth of Tay, the Firth of Forth, Berwick, Tynemouth, Filey, Cleesthorpe, Harwich, Sheerness, Dover, Newhaven, Portsmouth, Weymouth, Falmouth, the Bristol Channel, Holyhead, Barrow-in-Furness, the Clyde, Dublin Bay, Belfast Lough, Lough Swilly, Galway Bay, Berehaven, Queenstown Harbour, and Waterford Harbour, that gives twenty-five stations for the British Isles alone.

It is fairly rational to suppose that, when things are in full swing, there will be a full squadron of twelve machines at each station, or approximately three hundred machines in all. Even for a start, if only a single flight of four machines is posted at each station, a hundred machines will be needed. Besides these, there will have to be school machines for the Naval headquarters at Eastchurch, and for purely experimental work in connection with launching from ships, and such performances, so that a minimum of one hundred and fifty machines for the Naval Wing of the Royal Flying Corps will surely be quite a moderate estimate for the comparatively near future, and five hundred is a figure that should be reached within the next twelve or eighteen months.

If only British aeroplane builders can find the financial support necessary for them to show that they can execute orders for machines in quantities, and if they can prove that they can supply the right quality, the orders are certain to come to them, and these numbers alone are enough to ensure a good deal of employment for British workmen.

But, be it noted, the figures refer only to machines for the Navy at home, and take no account of our possessions abroad. India, Canada, South Africa, Australia, and New Zealand will, of course, need water machines of one sort or another for coast defence work, and, though they may eventually build such machines themselves, they will have to purchase in fairly large quantities before they are able to build. Even then, it may pay British firms to open branch establishments in the self-governing colonies, or to enter into working agreements with local firms for the supply of designs, materials, and trained workmen.

Further, there are the Crown colonies to consider, as well as our naval bases abroad. Water machines will be needed for Gibraltar, Malta, Alexandria, Aden, Hong Kong, Mauritius, the West Indian ports, the West and East African ports, certain of the Pacific islands, Esquimault, and other ports which do not occur to one at the moment. These may easily absorb another two hundred and fifty machines, and the self-governing Colonies ought to be good for another three or four hundred machines between them.

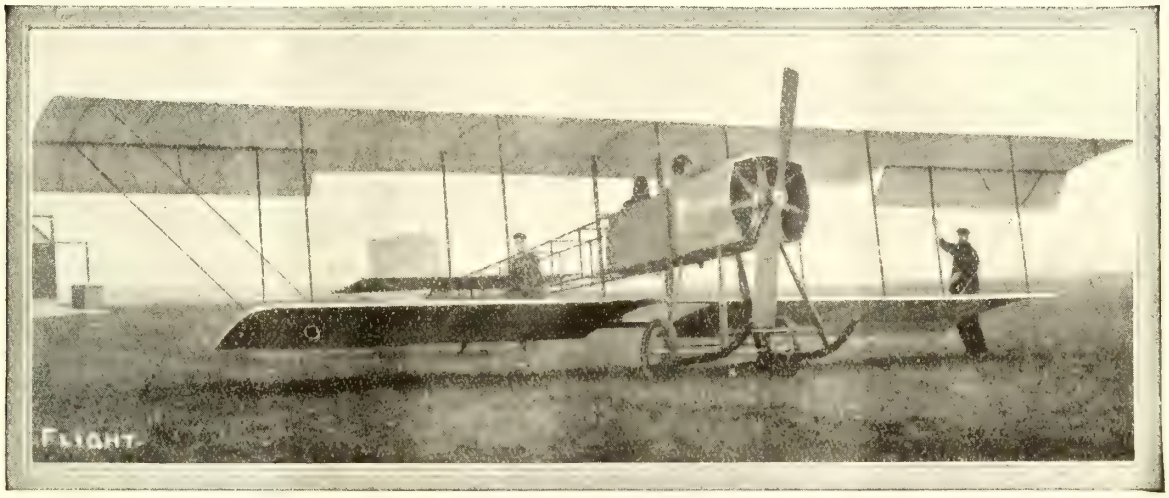
That is to say, the British Empire needs, at a fairly moderate estimate, something very like a thousand machines and pilots for coast defence work alone. None of these machines is likely to last much more than a year without being replaced or rebuilt, so there is a fair certainty of constant orders for the equivalent of ninety machines a month from British constructors for one purpose alone. And yet there are those who say that there is no future for those who enter the aeroplane industry, or who invest money in it.

Unbusinesslike Business.

There is considerable doubt whether the whole British industry, as it is at present, could deliver ninety machines in the next three months, judging by the time it has taken to turn out a few copies of the Royal Aircraft Factory's tractor biplanes. What, then, would happen if the Colonial Governments and the Admiralty suddenly made up their minds to equip their ports properly with coast defence aeroplanes?

It is quite time some of the really far-seeing business men in the City woke up to the possibilities of the aeroplane business, and financed the firms which can do good work and stand well in for Government orders. Apparently any crank with an impossible patent for parachute life-saving devices or unworkable automatic stability gadgets can get all the finance he needs; yet the firms who can offer a straight business proposition find it hard work to make both ends meet, while the idea of developing their businesses so as to be ready for the big orders which must come in the near future is a dim and beautiful dream to most of them.

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THE ROYAL AERO CLUB.

Report on the Fatal Accident to Lieut. E. Hotchkiss and Lieut. C. A. Bettington when flying at Wolvercot, near Oxford, on Tuesday, September 10th, 1912, at about 8.15 a.m.

Brief Description of the Accident.—Lieut. E. Hotchkiss, with Lieut. C. A. Bettington, as passenger, flying on a Bristol two-seater monoplane fitted with an 80-h.p. Gnome, left Lark Hill, Salisbury Plain, at about 7.2 a.m., on September 10th, 1912, to go to Hardwick, near Cambridge, in connection with the Army Manœuvres. When over Port Meadow, Oxford, at a height of about 2,000 ft., the aircraft was observed to be planing down in a normal manner. At a height of about 500 ft., the angle at which it was descending became very steep, and at about 200 ft. the fabric of the right wing appeared to burst and tear away in pieces. The aircraft then fell straight to the ground. The aviator and his passenger were both killed instantaneously.

Lieut. E. Hotchkiss was granted his aviator's certificate No. 87, on May 16th, 1911, by the Royal Aero Club, and Lieut. C. A. Bettington was granted his aviator's certificate No. 256, on July 24th, 1912, by the Royal Aero Club.

Report.—The committee met on Tuesday, the 17th; Friday, the 20th; Friday, September 27th; and Friday, October 4th, 1912, and heard the evidence of eye-witnesses. The representatives of the British and Colonial Aeroplane Company attended and produced plans of the aircraft, and gave evidence on various points raised by the committee. The committee examined the two cables and quick release devices, as well as the steel strap of the wrecked aircraft, and has made some experiments with the steel strap.

From the consideration of the evidence, the committee is of opinion that the following facts are clearly established:—

(1) That this particular aircraft was built about July 15th, 1912, and had taken part in the Military Aeroplane Competition on Salisbury Plain during the month of August, and had successfully passed all the tests with the exception of getting out of the ploughed field, and had been awarded a prize of £500. It was subsequently purchased and taken over by the Government.

(2) That, at a height of about 200 ft., the right wing of the aircraft failed.

(3) That a steel strap fell from the aircraft while in the air, and was picked up some 110 yards from the spot where the aircraft struck the ground. The steel strap was picked up within fifteen minutes of the accident, and was deeply embedded in the ground. A number of pieces of wood, portions of the wing, were picked up at the same time in Port Meadow in the vicinity of the steel strap.

(4) That this steel strap had holes for nine wood screws to fix it to one of the lower cross members of the fuselage at a point just in front of the passenger. Two brass screws only, one at each extremity, were in place. The two ends of the strap were attached by a quick release device to the two inside cables, running right and left, to attachments on the front spars of the wings.

(5) That the thin tubular ferrule, which holds the lever of the quick release device to the cable, was missing from the right wing cable when the aircraft was examined after the accident. This could only have been lost by its fracturing. The ferrule on the left wing cable is found to be cracked, but otherwise undamaged.

(6) That the fabric with which the upper side of the right wing was covered burst in the upward direction.

Opinion.—The committee is of opinion that in the first instance one of the quick release devices opened and the cable became detached from the strap. This threw the whole of the stress on the corresponding cable from the other wing on to the attachments of the strap to the fuselage. The quick release which attached the strap to the cable worked loose either shortly before or after the strap came away from the aircraft. The strap consequently fell to the ground. The lower surface of the right wing must have been pierced by a blow or blows from the cable which was hanging loose from the right wing. The bursting of the upper fabric of the right wing could only have taken place after the fabric of the lower surface had been rent.

Recommendation.—The attention of manufacturers, designers, and aviators is specially drawn to this accident and the cause thereof, with a view to care being taken to eliminate risk as far as possible from similar cause in the design of aircraft.

If a quick release attachment is to be embodied in the design of an aircraft, the committee recommend that it should be so contrived that it cannot release itself owing to vibration or to alteration in the tension on it.

The committee also draw attention to the possibility of a small initial damage causing total destruction of the wing surface.

The committee further recommend that some experiments should be made on fabrics generally, both before treatment and after treatment, to determine the effect on their resistance to tearing.



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The French Navy and the Aeroplane—*Continued.*

BY W. E. de B. WHITTAKER.

Captain Fatou imagines that the cycle of operations in the future will be that the aeroplane is kept, before use, carefully protected on the ship's bridge, with its wings folded back. At the necessary moment it is prepared for flight, and leaves the ship by means of some special launching apparatus. At the conclusion of the flight it returns to the lee side of the ship and is hoisted aboard. Thus simply is a complicated series of movements stated. As I said last week, he apprehends great difficulty in landing on a ship's deck. Remous from the heated air rising from the funnels adds to the trouble of landing on a crowded deck. Even the helicopter, in the future of which Captain Faton has some faith, would not find landing easy, owing to the drift caused by whatever wind might blow.

The time is not yet ripe to definitely fix the limits of size of sea-going and coast-defence aeroplanes, or to differentiate as to the relative naval efficiency of the monoplane or biplane.

The "Foudre," which started its career in the navy as a torpedo depot ship, has now been detached as mother-ship of aviation. On its deck is erected a hangar similar in form to any one sees on an aerodrome. It is 45 ft. 6 in. in width, 29 ft. 3 in. deep, and 13 ft. high. Ordinary sliding doors are fitted. Close to this shed stands a powerful crane, 30 ft. high, fitted that it may hoist aeroplanes in and out of the ship. Until recently the Voisin hydro-biplane (type canard), the first water-machine supplied to the Navy, was housed in this hangar. Many successful flights were made from the neighbourhood of the ship, the aeroplane being hoisted in and out as occasion required. Much was learnt from these experiments, and some of the impossibilities were realised. The authorities, one is assured, speedily discovered a number of things it was advisable not to do. Such knowledge is not without its virtues if acted upon.

At Fréjus a large number of hangars for hydro-aeroplanes are in course of erection, and several machines are already installed, also for experimental purposes. It will be possible to house aeroplanes at this place much larger than any previously used in any Service. The added advantage of sheltered harbour water is at hand on which trials may be carried out of various types of floats. Unfortunately, at this date it is more important to train officers and men to fly existing machines than to endeavour to build aeroplanes of almost miraculous efficiency. And France, as a nation, is not in the habit of working backwards. Let full use be made of existing material, and there will be plenty of time to discover the mythical artificial bird.

Captain Fatou, towards the end of his second article, enumerates some of the requirements of the French Navy so far as aeroplanes are concerned. It is essential that on all sea-going machines the wings should fold back readily and in quick time. Some system as at present in use on the Bréguet is desirable. Speed of manipulation and security of action are both necessary virtues. If the wings are so arranged that they can remain folded until the machine rests on the surface of the water, the operation of hoisting in or out of a ship would be much simplified.

The fabric should be attached to the spars and ribs in some such manner as was that on the Paulhan biplane—that is, it should not be glued down, but laced on with cord. By this means it can be rapidly replaced, and is, in any case, a sounder piece of work.

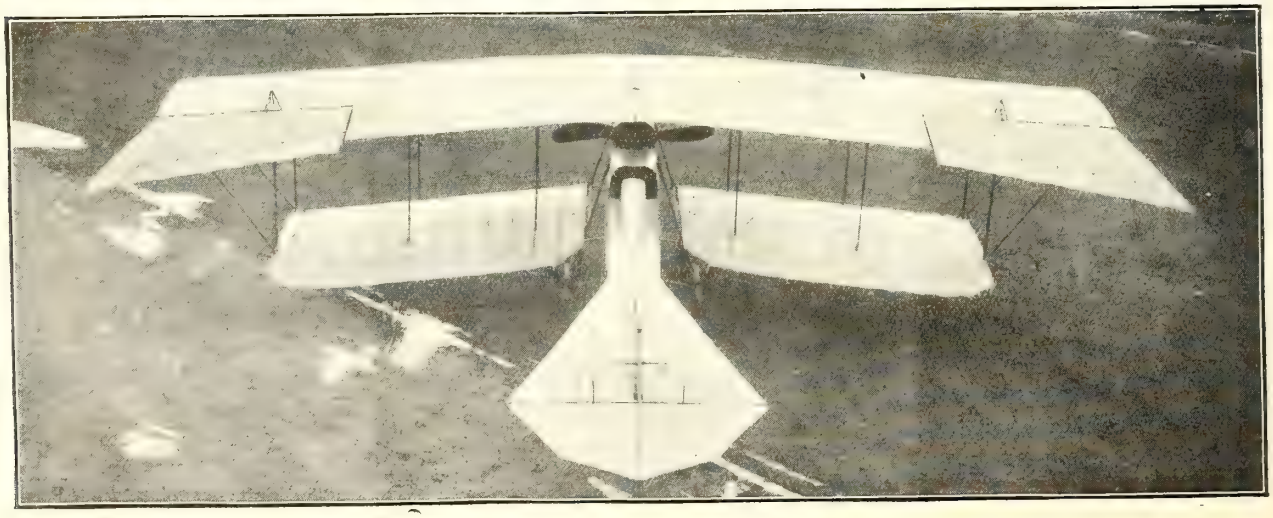
All vital parts of the framework of the wings and the fuselage should be so disposed as to render frequent examination an easy matter. The wings, if double-surfaced, should be fitted with inspection doors at such points as the stay-wire brackets.

Captain Fatou holds the common-sense view that, within obvious limits, the constructor should have full discretion in the choice of material. It is enough to insist that such material should be of approved quality. Perfectly seasoned wood is of even higher importance on marine aeroplanes than on those which operate normally over land. Aluminium, always a treacherous metal, ought not to be used at all on the hydro-aeroplane. Contact with sea-water brings about in a short space of time complete deterioration.

He thinks that the Navy will prefer to use two-seated machines for practically all purposes. The seats should be encased in a metal streamline body, protecting pilot and passenger from the waves, and also—if the engine is in front—from oil. The seats ought to be placed side by side, so that the controls may be used by either pilot or passenger. The duration of a flight can thus be greatly extended—a very desirable point for naval work.

It is indispensable that the observer shall have a perfectly clear view vertically downwards. The great part of the work alloted to naval aeroplanes will be the discovery of submarines and submerged mines, and it is, I believe, conceded that objects below water are only to be seen from a position directly above. Readers will be readily able to call to mind certain aeroplanes in present use which conform as nearly as possible to these requirements.

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GREAT BRITAIN.

From the "London Gazette".—War Office, October 4th. Special Reserve of Officers.

The Royal Flying Corps. Military Wing. The following to be Second Lieutenants (on probation):—Henry de Grey Warter, Edward Keith Davies, October 5th.

The Admiralty has decided to form a naval aviation station at Cleethorpes on the golf links. The erection of the necessary hangars and barracks will be begun shortly. There is at present a naval wireless station at Grimsby, and an oil fuel depot at Immingham. The importance to the Navy of this part of England is at last being recognised.

Lieut. R. B. Davis, R.N., has been appointed to H.M.S. "Actæon," to undergo an aviation course at Eastchurch.

FRANCE.

The Madagascar section of La Ligue Nationale Aérienne has subscribed nearly £3,000 towards the national subscription for the purchase of aeroplanes. Taking into account the small number of possible subscribers, this is a very creditable effort.

Until recently it was the custom in the flying corps for the Permanent Inspector to submit a list of those machines he desired to purchase to the Ministry of War, who, after the customary lapse of time and opportunity, would gracefully consent. Under the reorganisation scheme each great command — Reims, Versailles, and Lyon — will now forward a list of machines required to a special commission under the command of Colonel Voyer. This commission will adjust the requisition to the money available, and general happiness will reign. At least that is the present view.

Captain Felix has arrived in Morocco and taken up his command. On October 8th he flew, accompanied by Lieuts. Do Hu and Van den Vaero, all on Blériot monoplanes, from Tangier to Casablanca.—W.

GERMANY.

The German Emperor is dissatisfied with the progress of aviation in Germany, and is understood to have expressed to Admiral Tirpitz his disapproval at the delay in forming an efficient naval air corps.

The first dirigible balloon built for the Navy, a Zeppelin (L1), passed its first trials at Friedrichshavn on October 7th, piloted by Count Zeppelin. It is the largest yet constructed, and is driven by motors totalling 510 h.p. It is capable of remaining in the air for two days and a half.

The Gross dirigible balloon M3, which was almost destroyed by fire in the spring of 1911 and again seriously damaged on September 13th last, has now, after rebuilding, been finally destroyed by fire on October 10th at Tegel.

The bomb-dropping meeting organised by the military inspector of aerial navigation began on the Military Aerodrome at Docberitz on October 7th. The Ministry of War has offered prizes to the value of £600. There is no limitation of type as to the aeroplanes entered. Each pilot and passenger must be of German nationality. Each machine will carry an apparatus registering the speed and indicating altitude and direction and power of the wind. Each pilot takes with him five bombs, weighing 11 lbs. each. These bombs will not be charged. They must be dropped from a height of over 1,500 ft. on to a target 100 metres in diameter.—W.

The above event was of a purely military character, and the spectators were kept at a distance so considerable as to prevent them catching a glimpse of the sighting and throwing apparatuses, many of which are of quite recent construction. No details of the latter have been made known, but they are, apparently, satisfactory in the hands of a skilled man, as Schauenburg dropped five bombs into the centre from an altitude of 500 metres. The contest was hampered by dense fogs, but on the whole the officers came up to expectations, especially Lieutenant von Buttlar, who ran Schauenburg close for chief honours. On the final day Hartmann took part in the contest on a Wright fitted with the apparatus designed by Lieutenant Scott, U.S.A., which had won the Michelin competitions. It, however, failed to satisfy on this occasion, as not a single bomb reached the mark. Schauenburg, therefore, took first prize, £400, and Lieutenant von Buttlar and Lindpaintner were second and third respectively.

ITALY.

On October 7th at Gallarete, near Milan, Lieut.-aviator Colni, flying with a mechanic as passenger, fell owing to a sideslip. He was injured and his mechanic was killed.—W.

RUSSIA.

The expert commission appointed to investigate and settle the protests made by certain Russian constructors in regard to the conduct of the military aeroplane competition have come to some curious decisions. It refuses to interfere in the allocation of points to the different competitors. As to the classing of aeroplanes as foreign or home built, it has decided that in spite of both the Nieuport and Farman machines having been constructed by the "Dux" firm of Moscow the former is to be classed as foreign and the latter as Russian. It also raises doubts as to the nationality of Kennedy, who entered a biplane. He claims to be Russian. An additional inquiry is to be held.

The total amount received up to the middle of last month in the national subscription for the purchase of military aeroplanes was £10,273. So far a sum of £3,414 has been expended in the purchase of aeroplanes.—W.

AUSTRIA.

Captain Odolek (Cavalry), who has invented a parachute for the use of aviators, gave a demonstration of its virtues on October 4th to the supreme military authorities at Vienna. So successful was he that the Ministry of War has ordered several for use in the Army Aviation Corps. The apparatus is attached to the back of the pilot, and acts automatically at the moment of danger. How it knows this moment is unexplained. The parachute is opened by the explosion of a small cartridge. The aeroplane drops away, and the pilot descends gracefully and happily to the ground.—W.

On October 1st 25 Austrian officers were appointed to the Aero Corps at Vienna to be instructed in aviation.

BELGIUM.

The Army Aviation Corps, small though it is, is reaching a high state of efficiency. Hardly a day passes without some lengthy flight taking place from the military aerodrome of Brasschaet. On October 6th Lieut.-aviators Demanet and Dechamps passed the theoretical and practical tests for their superior military brevets. Later, piloted respectively by Lieuts. Dhanis and Moulin, they also passed their observation tests. For this purpose they were taken over one of the new Antwerp forts at a height of 1,600 ft.—W.

On October 10th Lieut. Demanet, a Belgian officer, made a call on the Belgian Royal family at Ciergnon from the aerodrome of Saint Job, and, in spite of cold and fog, covered the journey of 180 kilometres over bad country without accident, passing by Antwerp, Malines, Louvain, where he landed, then by Wawre, Gembloux, Namur, Ciney, and after two hours landed near the Royal Castle of Ciergnon. The King, warned beforehand, sent an officer to congratulate the pilot, asked for details of the voyage, and invited him to breakfast at the Castle. In the afternoon, after Lieut. Demanet had explained the machine to the young Princes and Princess, the King came to visit the officer and displayed considerable knowledge of aeronautics. The sportsmanship of the King was shown next day when Lieut. Demanet, having announced his intention to start at 5 a.m., the King arrived at the starting ground before the officer himself, and helped him to fill up his tanks, remaining on the ground till the machine had left. The machine on which the flight was done was a Henry Farman, built in Belgium by La Maison Bollekens, of Antwerp.

PORTUGAL.

As was recently noted, A. V. Roe and Co. have sold a 50-h.p. Gnome "Avro" biplane to the Portuguese Government, exactly like those supplied to the British War Office. Mr. H. V. Roe is now in Lisbon, accompanied by Mr. E. W. Copland Perry, as pilot. A cable from Mr. Roe says that on October 10th Mr. Copland Perry made three fine flights over Lisbon and the Bay of 10, 15 and 20 minutes' duration each, and during the last two flights he took up a passenger. These flights were witnessed by huge crowds of people who were greatly delighted with the performance. The Portuguese have been celebrating the anniversary of the Republic, and the new addition to their defence force arrives appositely. One hopes to see many more orders for Avros coming from abroad, for the machine is one of the best in the world, as many British military pilots will bear witness, and Messrs. A. V. Roe and Co., have distinguished themselves by delivering accurately to time the few machines their own country has seen fit to order.

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AVRO

BOOKS TO READ.

Stability in Aviation. By G. H. Bryan, Sc.D., F.R.S. Price, 5s. net.
Artificial and Natural Flight. By Sir Hiram S. Maxim. Price, 5s.
Monoplanes and Biplanes. By Grover Cleveland Loening, B.Sc., A.M. Price, 12s. 6d.
My Three Great Flights. By Lieut. de Conneau. 10s. 6d.
All About Airships. By Ralph Simmonds. Price, 6s.
Aerial Navigation of To-day. By Charles C. Turner. Price, 5s.
Flying—The Why and Wherefore. By "Aero-Amateur." Price, 1s. net.
Model Flying Machines (The Design and Construction). By W. G. Aston. Price, 1s. net.
Obtainable from "The Aeroplane," 166, Piccadilly.

ROUMANIA.

The existing Military Flying Corps owes its inception primarily to the efforts of Prince Bibesco, who learned to fly in France during 1910. The following year he returned to his native country, having ordered several French machines. He erected, under authority, some hangars on the military ground at Cotroceni. He also trained several of his friends as aviators. Finally, he made a free gift to the Government of his aeroplanes and hangars. The Government, under persuasion granted a sum of money for the organisation of a Flying Corps, but many difficulties arose. Bureaucracy has as many vices as virtues. The military engineers desired, not to purchase French machines, but to copy them. Entirely devoid of experience and as full of assurance as their prototypes in greater nations the results of their first experiments were disastrous. Another curious similarity to Those Whom We All Know is that they pin their faith to the biplane. To them the monoplane is anathema. As a result the genuine soldier takes but little notice of the engineer, and by dint of constant application and well-chosen abuse manages to get the aeroplanes he desires. Consequently in the Roumanian Flying Corps there are examples of the Henry and Maurice Farman biplanes, and Nieuport, Morane, and Blériot monoplanes. The best-known military pilots are Lieuts. Capsa, Zorilianu (Nieuport pilot), Radulian, Protopescu (pilots Farman) and Dan Saharia.—W.

BULGARIA.

On October 10th at Johannisthal, an abode of sinister fortune, Lieutenant Popristeff, of the Bulgarian Army, who was in training as an aviator, collided with a Taube monoplane while flying an Albatros biplane. His machine was overturned, his thorax pierced, and he is dying.

Several Russian aviators have offered to fly for the Bulgarian Government in the war in the Balkans.—W.

A Bulgarian officer, Lieutenant Milkoff, has just passed his pilot's examination on an Albatros. On his return he will be appointed Chief Instructor at the first military aviation school in Bulgaria.

CONTINENTAL NOTES.

France.

The Coupe Pommery now produces the finest and most useful flights of the year in France. There is strong competition for it, and several previously unknown pilots have sprung into fame through their performances in attempts to win it. Last week Janoir, on a Deperdussin, made a flight of great excellence. This week Daucourt, already the holder of the Circuit de Paris made the longest cross-country flight of the year, and is the winner of the Coupe Pommery if no longer distance is covered. He left Valenciennes on a 50-h.p. Gnome-engined Borel monoplane one minute after sunrise on October 6. At 8.10 a.m. he landed at Chateaufort. Leaving at 9 a.m. he reached Angouleme just after noon. Rising again at 1 p.m., he flew to Croix d'Hins, near Bordeaux, where he stopped a few minutes. He made his final landing at Biarritz at 5.38 p.m. He had then concluded a flight of 850 kilometres in a straight line. Whoever intends to contest this prize will need to make a great effort.

M. Bernard, accompanied by M. Senouque, the one-time inseparable companion of M. Renaux, left Calais at 6.25 a.m. on October 11 on a Maurice Farman biplane (Salmson motor, 80 h.p.) in an attempt on the Coupe Pommery. They reached Buc at 10.10 a.m. and Croix d'Hins, near Bordeaux, at 5.35 p.m., where they gave up owing to the thick fog. On the same morning Molla, on a Rep monoplane, left Calais at 6.27 a.m. with the same object in view. He came down at Villiers-l'Hôpital (Pas-de-Calais) and returned by road to Calais.

It is reported that M. Senard, flying an Anzani-engined Blériot monoplane at Juvisy reached a height of 14,600 feet. The French papers state in a non-committal way that his barometer registered that height.

On October 8, M. Beaumont took Mr. Lowe, the Vickers designer, for a flight over the Seine at Bezons on his 80-h.p. Gnome-engined Donnet-Levêque hydro-biplane. Mr. Lowe later made several straight flights alone on a 50-h.p. Donnet-Levêque. Mr. Beaumont's machine was, at the end of the day, packed for transmission to England, where he intends to demonstrate the art of flying.

Lieut. Scott, the American, who with Gaubert as pilot won the "Aéro Cible" (Aerial target) Michelin Prize, has left Paris for Germany in order to take part in the coming bomb-dropping competition.

The course of construction at the Rep aviation school now proceeds on set lines. The pupil is first taken into the air on an aeroplane fitted with dual controls, his control being subordinated to that of the pilot. After he has to all intents and purposes flown the machine in this machine—an easy matter, as the presence of an expert gives confidence—he is put on a monoplane which is only capable of rolling and making short, low straight flights. Having mastered this, he is then entrusted with a single-seated monoplane of the usual type. His course of instruction ends on this machine.

Germany.

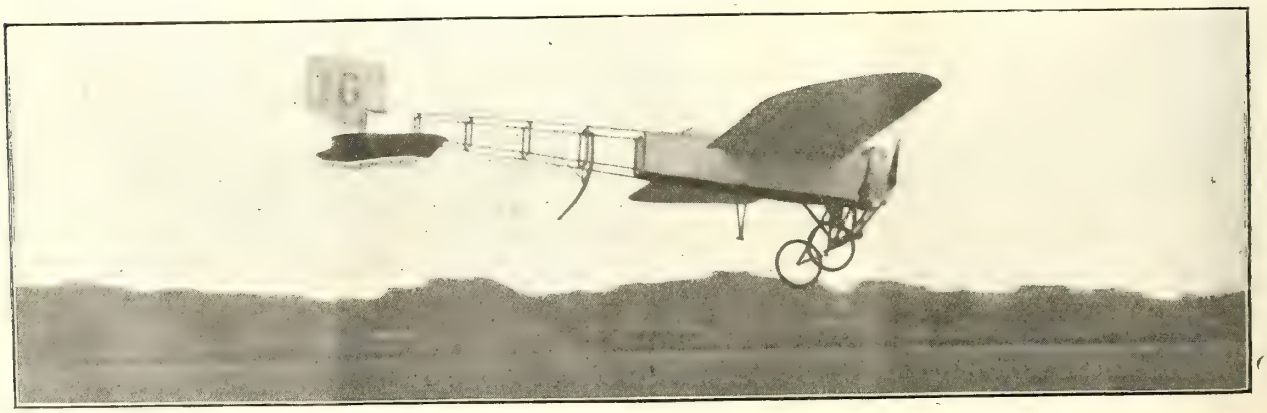
The Johannisthal aviation week, which on its closing day was blurred by the fatal accidents to Alig and Lieban, resulted in Sedelmayr (Wright) topping the prize list for duration with a total of 7 hrs. 42 mins. Another Wright, piloted by Mohus, was second with 7 hrs. 39 min. The 15-kilometre speed trial went to Schmidt, on a torpedoplane, in 7 min. Krieger (Jeannin) was second in 7 min. 12 sec. Fokker, on a Fokker monoplane, won the altitude contest with 3,096 metres. The only sensation of the meeting was the accident referred to above, when the apparatus caught fire aloft and simply dropped to bits, wings, rudder, machinery hurling down to earth, and the two hapless aviators dashing down with the ruins. Never before has anything so awful been witnessed in German aviation.

Johannisthal is constantly the scene of horrible accidents. Verily this aviation ground is not favoured by the gods! On October 9th there was a collision in the air between an Etrich-Rumpler-Taube piloted by Michaël, and an Albatros biplane with Lieutenant Popristeff, of the Bulgarian Army, at the wheel. Both machines came down, and the officer was buried beneath the Taube, whence he was extricated with very serious injuries. Michaël was not severely hurt.

Fokker, of stability fame, flew from Johannisthal to Hamburg on October 8, landing at Lauenberg on the way.

August Euler, who hitherto has constructed biplanes only, is now busy at work building a monoplane with an entirely enclosed body.

At Munich Herr Birkmayer, flying a Schulze-Herfort biplane, side-slipped owing to over-banking at a corner. He was killed instantly.



Mr. B. C. Hucks, now returned to Hendon, is here shown flying his fast 70-h.p. Military tandem Blériot.

Developments at Eastchurch.

It is a pity in a way that Eastchurch is so ungetatable, for the distance from town deprives the members of the Royal Aero Club of the chance of seeing some very fine flying on their own aerodrome. On the other hand, the same quality preserves the Naval Wing of the Royal Flying Corps from the attention of the daily Press, with its flowery imaginativeness, so the Navy is able to do its flying undisturbed by fears of what may appear in print. Thus the Club's loss is the Navy's gain, though it seems rather wrong that the British public who pays the bills should not know what remarkably good work is being done by the Naval Wing.

By sheer good luck I happened to catch the Isle of Sheppey under good weather last week, and so was able to form some idea of the activity that prevails under ordinary circumstances. When I arrived it was blowing hard from the east, and flying seemed unlikely, but to my surprise I found three biplanes in the air. One pilot was assiduously doing figures of eight on one of the very old Short box-kites, and apparently getting a lot of shaking up. I learned that this was Lieut. Byrne, R.N., going for his certificate. Fancy a man doing certificate tests in a wind which was enough to keep any ordinary aerodrome pilot in his shed! The second flier was Mr. Eric Harrison, the crack Australian pilot, who was putting a new Bristol box-kite through its paces, and, good a flier as he is, Mr. Harrison was having quite as much weather as he wanted. Just why the Navy saw fit in this year of grace to buy a box-kite when it might have had a modern tractor biplane is not easily explained, and, as the Navy steadfastly refuses to discuss its private affairs, one has to remain unenlightened. After all, the original Gordon England tractor would have made a fine school machine, and even if it was not quite up to Military Competition standard it would have better than any box-kite.

The third machine was so high up that at first one could not see what it was, but I was told that it was a Short biplane, piloted by Lieut. Seddon, R.N.—he who broke a leg early this year by attempting to land another biplane inside a shed which had its doors closed. One gathers that he is now one of our finest pilots, and that on five days last week he was cruising around cheerfully at anything over 5,000 feet.

When the machine came down, it revealed itself as a biplane of a somewhat novel type, though actually the machine is the ancient "Short 38" rebuilt. In its new form the extended sections of the upper plane have a pronounced dihedral angle, and taper sharply backwards. The gap between the planes has been reduced. The chassis is lower. The engine and its bearers are considerably above the lower plane, and are fixed to a raised body or fuselage, in which the pilot sits a good way in front of the leading edge. The passenger is slightly in front of the leading edge, and has an excellent view below and on each side. His seat is on the same level as the pilot's, so that he is comfortably protected from the weather, and he has plenty of leg-room in which to stow drawing tackle, maps and instruments. The front elevator is very small and practically flat, and it is placed only a few feet in front of the pilot; in fact it seems to be there to keep him company more than for any other reason. As a matter of fact, it has quite a lot of effect, for the machine is very quick on her controls, though practically automatically stable when once in the air and going ahead, as was shown by the fact that the machine was scarcely moving when the others were pitching and rolling badly.

Even when landing and catching the wind off the sheds she just gave a slight kick and came back at once. Her performance may have been due to Mr. Seddon's fine flying, but it would have been impossible on anything but a very good machine. Also, it must be remembered that she does not owe any of her stability to her speed, for she is a very big machine with only a 50-h.p. Gnome, and consequently she is one of the slowest machines in the Service, for her power goes in lifting efficiency and stability.

At the moment there were few naval machines in use, for the 100-h.p. and the 70-h.p. Short tractors and the Henry Farman were in the Firth of Forth, with Commander Samson, R.N., Captain Gordon, R.M.L.I., and Lieut. Hewlett, R.N., but evidently considerable activity is in prospect, for eight big sheds for the Navy are nearly completed, and each of them will hold two big machines or three or four small ones. Also, very solid brick quarters for officers and men are being put up, and these should accommodate a hundred people, or thereabouts, with ease. I take it that this statement is not giving away official secrets, for any member of the Royal Aero Club can go and see for himself the work in hand.

The Short Brothers' factory is also increasing rapidly in size, several new shops having been put up since I was last there. Mr. Horace Short kindly showed me round the works,



A portion of the Eastchurch Aerodrome, showing Naval and Royal Aero Club sheds, and the Short Bros.' factory. On the ground are two Short biplanes and a Deperdussin monoplane, and in the left top corner a part of the new naval buildings. The photograph was taken by the writer from "Short 38."

where quite a number of new machines are coming through. Among those nearly finished were a couple of tractor biplanes, in which the workmanship showed that, good as the Short work has always been, it is still improving. The finish of the planes is particularly good, and ought to reduce skin friction to an absolute minimum, for the surface is like glass. As usual, the chassis and fuselage work is remarkable for its solidity, though one gathers that these machines are considerably lighter than some earlier examples of the same type. They are intended primarily for school work, or they could have been made even lighter. Mr. Short has some exceedingly interesting hydro-aeroplane work in hand, but of this it is not permitted to speak for the present.

It is, of course, well known that Mr. Short is the only designer who has actually produced machines with two independent power plants, and one often hears people ask why one should use two 50-h.p. engines instead of one 100-h.p., or two 70-h.p. instead of one 140-h.p. The general idea is that if one engine fails altogether the other will so decrease the angle of descent that one can pick a good landing place with some certainty, even if the remaining engine is not quite enough to keep the machine flying level. There is now, however, another very important argument in favour of the independent engine system, namely, that if a hydro-aeroplane is compelled by the failure of one engine to come down at sea, it can still get home on the surface of the water with the other engine. It is not so long since Commander Samson, on the 100-h.p. tractor, came down off the Kentish coast owing to engine stoppage, and was nearly driven on the rocks after drifting helplessly for a couple of hours. If half his power had been independent of the other half, he could have flown some miles before he reached the water, and could have got into harbour under his own power instead of having to be ignominously towed in after a narrow escape from being wrecked.

This argument is all the more important because the hydro-aeroplane of the future is obviously going to be a huge machine of anything from 200 h.p. to 500 h.p., and a wreck will then be a much more serious matter than it is with the small and comparatively cheap machines of to-day.

The second day of my visit to Eastchurch was beautifully fine, but also somewhat windy, so none of the box-kites appeared. Still, there was plenty of flying. Early in the morning Lieut. Spencer Grey, R.N., was out on the renovated 70-h.p. Gnome Deperdussin which M. Prévost and Mr. Santoni flew from Paris early this year. He handles the machine in excellent style, without playing tricks with it. The command he has over it was shown later in the day when he was flying in a 20 m.p.h. wind and carrying a passenger. They were just half way round a fairly sharp turn to come down wind when there was a terrific bang, and the engine stopped. He had to get round in order to reach good landing ground, and that meant landing down wind at something like 70 miles an hour, but he did it without hesitating a moment, and landed quite smoothly and neatly. Afterwards it was found that an inlet valve had blown out, and a piston had cracked right across.

Also early in the morning, Lieut. L'Estrange Malone, R.N., was out on the No. 38 Short, with Lieut. Clark-Hall, R.N., as passenger, flying very prettily, the machine lifting like a rocket, and as soon as he came down Lieut. Seddon went up alone, cruising round the island. It was evident that he had gone fairly high, for the big machine became almost invisible in a perfectly clear sky, and when he came down it was found that his barometer registered 7,500 feet. A goodly height for a comparatively new pilot on a 50-h.p. biplane to reach by way of a training spin. One wonders what he would do if he really went out for an altitude record.

In the afternoon Mr. Ogilvie was flying well on his Wright with the N.E.C. engine in front, and a new, long streamline body behind. He tells me that this engine needs very little attention. Now that its fuel supply has been properly adjusted, and the right plugs have been found, it keeps on doing its work regularly like a car engine. Down at Eastchurch this little 4-cylinder two-stroke engine has a splendid name for reliability, and great faith is expressed in the future of the new 90-h.p. N.E.C. which is almost ready for the market.

Mr. Jezzi was hard at work on his little J.A.P.-engined biplane, in which sundry minor alterations have been made, including the fitting of extensions to the lower plane, which give more lift, and slightly less speed.

Later on, Engineer-Lieut. Briggs, R.N., decided to go for a two hours' trial with a passenger on the hard-worked Short 38, so she was filled up with twelve or fourteen gallons of petrol, and oil to match—a three hours' supply. By courtesy of Lieut. Gregory, R.N., commanding at Eastchurch, I was



Lieut Spencer Grey, R.N., flying the Deperdussin 70-h.p. monoplane, which was delivered by air from Paris by M. Prévost and Mr. Santoni. This machine, which was barred from the manœuvres by the military authorities, was flown back to Eastchurch by Mr. Grey.

permitted to go as passenger with Mr. Malone for the short test flight before the machine was handed over to Mr. Briggs. Although fully loaded with fuel and carrying between twenty-five and twenty-six stone of humanity, the old machine lifted like a rocket, and, though there was a distinct breeze, I have never been on anything steadier. Mr. Malone's work seemed purely directional, and so far as stabilising was concerned he used his wheel much less than one uses the wheel of a car when driving on a straight road. I am credibly informed that we did get a few "dunts" off the sheds, but as I was busy with a camera at the time and did not notice them, I take it that they were unimportant so far as that machine and pilot were concerned. What impressed me most, I think, was the quickness of the fore and aft control when landing and Mr. Malone's excellent judgment of distance.

Thereafter Mr. Briggs took charge, and went off with a particularly hefty E.R.A. as passenger. When I left nearly two hours later they were still up at something over 5,000 feet, flying steadily.

The triple tractor and triple-twin Short biplanes were being overhauled, and the great 140-h.p. experimental monoplane, with tandem engines, was having some repairs and alterations made, so a certain amount of interest was lacking.

Nevertheless, anyone can see that things are only just beginning at Eastchurch, and that the Naval Wing of the Royal Flying Corps is going to be a very big thing indeed. Also, the private experimental work which the brothers Short have in hand is rather likely to surprise some of those who think that because Eastchurch is out of London it is also out of the world.—C. G. G.

Mr. Cody and the Michelin Prize.

On Saturday last, October 12th, Mr. Cody made his second attempt on the cross-country Michelin Cup, leaving Laffan's Plain at 11.50 a.m. timed by an officer of the Royal Flying Corps. He set off for Lark Hill and took only eight minutes to reach Basingstoke. Thereafter he was worried by the fog, and his time to Lark Hill was sixteen minutes slower than it was on his first attempt. From Lark Hill he headed for Newhaven, and, unfortunately, tried to steer by the ground instead of by compass, with the result that the first thing he recognised was Southampton Pier, which was fully sixty miles to the west of where he should have struck the coast. From Southampton he turned eastward and flew along the sea coast, having a beautifully steady trip without any inequality in the wind to worry him.

On reaching Newhaven he turned up the Ouse, heading for Brooklands, and on this stretch of the journey he received what he described as the worst knocking about he had ever had in a cross-country flight. Four times he lost his way owing to fog, and when he passed over Brooklands at 2,000 ft., the observers noticed how badly the machine was rocking. He passed over Woking a few minutes afterwards at 3,000 ft., and landed at 3.16 p.m.

On no part of the journey had he any assistance from the wind, which was sideways the whole way, except on the stretch from the sea coast to Brooklands, where he had it in his face.

The distance covered is at the most moderate estimate 210 miles, which makes his flying speed 60 miles an hour, though for purposes of the prize the course must be reckoned as the regulation 186 miles, and the speed at 53 miles an hour.

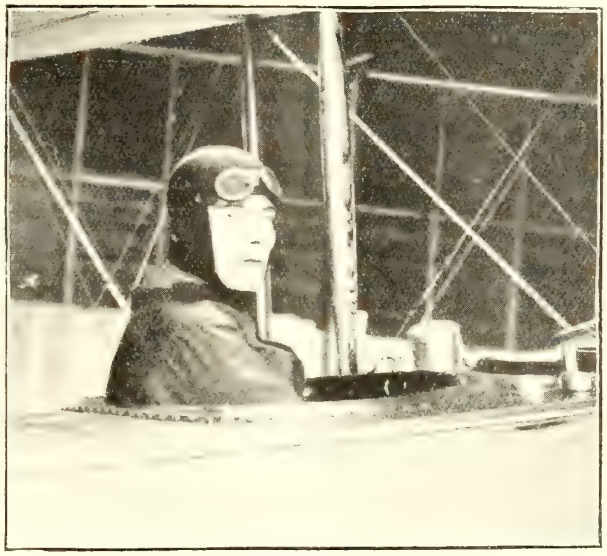
The real speed of his machine is shown by his first attempt, when his average speed for 150 miles works out at over 70 miles an hour, and by the fact that after repairing his machine where he landed near Lewes he flew from Firle, which is 4½ miles from Lewes, to Laffan's Plain, 43 miles in 26 minutes.

The whole performance is undoubtedly a fine proof of the efficiency of the Cody machine, and of the reliability of the first of the new 100-h.p. six-cylinder Green engines.

At the moment of writing it seems as if the Michelin £600 is Mr. Cody's, for though one or two other machines have been intending to start none of them have actually done so, though Mr. Raynham flew the enclosed Military Trials Avro with a 60-80 Green engine from Lark Hill to the new Avro school at Shoreham last week. It seems strange that with so valuable a prize on offer no other British maker should have made an effort to secure it.

The Sopwith Biplane's Tests.

On Tuesday of last week Mr. Sopwith's new tractor biplane put up a performance which is very well worth noting. In the morning Mr. Sopwith flew from Brooklands to Farnborough with Mr. Ronald Charteris as passenger in 14½ minutes, though the machine was fitted with the only propeller available, and that was designed for a 70 m.p.h. Blériot and not for the considerably slower biplane. On arriving at Farnborough Mr. Sopwith took the machine up alone to 1,000 feet in three minutes. He continued up to nearly 1,600 feet, and from there started a glide. The machine glided so slowly that the propeller stopped, and he had to come down almost the whole way without power. He afterwards took up one of the officials of the Royal Aircraft Factory to time the machine over the measured speed course, and in spite of the unsuitable propeller did 50.6 miles an hour for his fast speed, and 35.4 miles per hour for his slow speed, these being the official times. Afterwards he did a rolling test over the regulation course, and passed with ease. In this connection it is, of course, necessary to note that with a machine which flies properly at about 35 miles an hour a very large proportion of the weight is carried by the planes when she is rolling at 20 miles an hour, so that a low minimum flying speed is an immense advantage when landing and rolling. The large difference between high and low speed and the fact that there is so little strain on the chassis when rolling indicates that such a machine would be absolutely ideal for school work, for it is obviously easier for the pupil who has just taken his certificate on a box-kite to handle such a machine than it is for him to take out the huge powerful machines which are actually intended for use by the crack pilots of the Flying Corps. For instance, it is scarcely likely that the pilot who smashed up a brand new 70-h.p. £1,000 Bréguet the other day would have done so if he had had practice on a machine like the Sopwith tractor as an intermediary between the laborious box-kite and the fast Bréguet. Of course, Mr. Sopwith can supply the bigger and faster machines if required



Air Mechanic Higginbottom, the first air mechanic pilot of the Central Flying School.

An Avro Air Mechanic Pilot.

The accompanying photograph shows Air Mechanic Higginbottom in the Avro biplane on which he obtained his pilot's certificate on October 5th, 1912. Higginbottom is attached to "A" Flight at the Central Flying School, Upavon, and is the first air mechanic at the School to obtain his brevet. It speaks well for his ability, as well as for the careful coaching of Captain Fulton, R.F.A., "A" Flight Commander, that Higginbottom was successful in obtaining the coveted certificate, after only a few hours' practice in the air, and on such a fast machine as the Avro, whose flying speed is 40 to 61 m.p.h. Air Mechanic Higginbottom's success is a proof of the earnest enthusiastic work performed in and by the Royal Flying Corps.

Paris Show Trips.

In connection with the International Aeronautical Exhibition at the Grand Palais special return tickets will be issued by the South-Eastern and Chatham Railways from London to Paris on Fridays, October 25th and November 8th, and Thursday, October 31st, by the undermentioned services :—

Charing Cross	dep.	10.0 a.m.	2.20 p.m.	9.0 p.m.
Paris Nord	arr.	5.20 p.m.	11.25 p.m.	5.40 a.m.

The tickets are available to return any day up to and including the Monday following date of issue by the following services :—

Paris Nord	dep.	8.25 a.m.	2.30 p.m.	9.20 p.m.
Charing Cross	arr.	3.25 p.m.	10.45 p.m.	5.43 a.m.

And they will also be available by the 8.25 a.m. service on the Tuesday following the date of issue. The fares will be 58s. 4d. first, 37s. 6d. second, and 30s. third class.

The Aeronautical Society.

The first general meetings of the Society for this session will be held early in November, when the recent Military Trials at Salisbury will be discussed from the military point of view and from that of the constructor. It is hoped that General Henderson and other officers who are interested in aviation will take part in the discussions, as well as constructors of aeroplanes. It is intended that a couple of papers on the subject will be read at the first meeting, and that the arguments thereon shall be heard at the following meeting.

Brighton-Shoreham Aero Club.

Messrs. Raynham and Charteris both intend to compete for the British Empire Michelin Prize No. 1 at the Shoreham Aerodrome at an early date. Day and time will be advertised in the "Sussex Daily News."

Mr. Raynham arrived last Friday on the Avro Military Trials biplane from Larkhill and reported that mist made it impossible to recognise landmarks, so he followed up the coast till he arrived here. This locality has, as usual, been wonderfully free from the prevailing fogs.

Considerable activity is promised at the Shoreham Aerodrome during the winter, for the A. V. Roe School will soon be in full swing.

The Week-End at Hendon.

Those people who were wise enough last Saturday to realise that a fog in London is not necessarily of very great extent found, when they arrived at Hendon bright sunshine and absolutely perfect flying conditions, together with one of the finest exhibitions of flying one could wish to see.

The start of the cross-country race for the Maharajah of Alwar's Cup was postponed for half-an-hour so as to let the ground mist clear still more, and the race resulted as follows:—

Name.	Place.	Start.	Times.
Turner ...	1	8m. 35s.	29m. 7s.
Verrier ...	2	1m. 5s.	29m. 51s.
Desoutter ...	3	scr.	30m. 22s.
Travers ...	4	1m. 30s.	33m. 8s.

The speed handicap also provided some very fine flying, the first heat resulting as follows:—

Hucks ...	1	scr.	6m. 55s.
Noel ...	2	51s.	7m. 9s.
Verrier ...	3	39s.	7m. 10s.
Grahame-White...	4	1m. 17s.	7m. 16 4-5s.

And the second:—

Desoutter ...	1	scr.	8m. 39s.
Turner ...	2	1m. 42s.	8m. 41s.

In the second heat Mr. Pickles, flying the little Caudron, was disqualified because he, unfortunately, passed over the top of one of the pylons instead of round it. Mr. Brock, on the little Deperdussin, gave up after three laps, and Mr. Nardini, on the 60-h.p. Deperdussin, could not quite pull up his handicap time. The final will be flown next Saturday.

Mr. Turner, as usual, was flying one of the Grahame-White biplanes; M. Verrier had a new Maurice Farman out, which seemed to fly quite as well as his previous machines; Mr. Desoutter was on the old Gordon-Bennett Blériot; Mr. Travers and Mr. Grahame-White each flew the big 70-h.p. Farman, Mr. Noel flying the 80-h.p. Mr. Grahame-White's passenger in the first heat of the speed handicap was Mr. Bernard Isaac, the manager of the firm's London office, who is responsible for the clever advertising which has done so much to popularise the London Aerodrome.

During the afternoon M. Galy made a number of flights on the 45-h.p. Caudron with passengers, and M. Richet was out testing a new British-built Bréguet with a Canton-Unné engine, but the engine hardly seemed to be doing its best.

Whenever opportunity offered between races Lieut. Parke, R.N., was up on the Handley-Page monoplane, taking up a number of friends as passengers. There were frequently half-a-dozen machines in the air at one time, and the great variety of types made the afternoon unusually interesting.

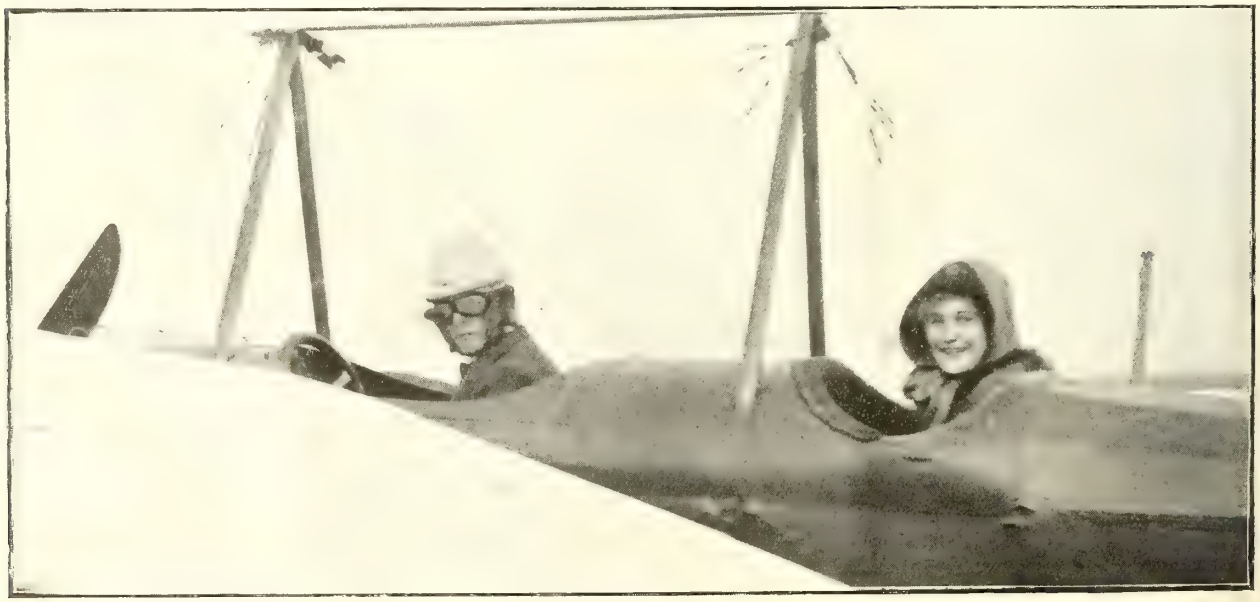
It should be noted that competition and exhibition flights will be continued at Hendon right through the winter, and that the weather in the winter permits of flying quite as much as it does in the summer, while there is the additional advantage that owing to darkness coming earlier the best flying is done between mid-day and 5 p.m., so that one can get home in reasonable time in the evening.

Sunday, if anything, was an improvement on Saturday as a flying day. Flying officially began at three o'clock, when Mr. Lewis Turner made a flight on the 80-h.p. Gnome-engined Grahame-White biplane, followed shortly afterwards by Mr. Noel on the 80-h.p. Gnome Farman, with Mr. Whittaker as passenger. They flew over the Welsh Harp and back at a height of 2,000 ft. At 3.30 Lieutenant Parke, R.N., started for Brooklands with Mr. Bernard Nicholson, of Jenson and Nicholson, Ltd., the makers of Robbialac, as passenger on the Handley Page monoplane.

It is impossible to enumerate the various flights made during the afternoon, and a mere list would annoy the reader. Mr. Pickles was out all day making numerous flights on the 35-h.p. Anzani Caudron biplane. The steepness of his vol plané is interesting, and not to be imitated by the youthful student of practical aviation. M. Richet again made test flights on the Bréguet biplane. His engine still ran with unpleasing irregularity. M. Galy made several excellent flights on the 45-h.p. Caudron biplane with his habitual erratic landings. Mr. Grahame-White flew three or four times in the 70-h.p. Gnome Farman—once accompanied by Mrs. Grahame-White. This aeroplane was afterwards flown by Mr. Travers, who took up many passengers. Mr. Desoutter was out for some time on the Gnome Blériot. Mrs. Stocks did two circuits in excellent style. Mr. Gates made a number of circuits on the 70-h.p. Gnome Farman, apparently practising for future racing. M. Nardini flew for a short time on the 60-h.p. Anzani Deperdussin monoplane. At 5.30 p.m. Lieutenant Parke, R.N., and his passenger returned from Brooklands, having made the journey in sixteen minutes. Several machines were still flying as dusk fell. Hendon has had no better week-end during the entire year.

Lost.

Mr. John Cates, of the Shell Spirit firm, intimates that during the Military Competition he lost a diamond cluster tie pin, probably at Upavon or Lark Hill. If anybody connected with aviation found such an article during the competitions, would they kindly communicate with Mr. Cates at once, care of this office? The pin is worth more to Mr. Cates than its intrinsic value to anyone else.



A Fair Passenger at Hendon.—Miss Allison Caws, with Lieut. Parke, R.N., on the Handley-Page monoplane.

The Week's Work.

MONDAY, October 7th.

R.F.C. (Central School).—Fresh northerly wind, foggy early morning, soon cleared. Flights on Maurice-Farman biplane 411. Lieut. Longmore, R.N., with Capt. Paine, R.N., the commandant of the school, 8 mins., and with Mr. Prideaux Brune 10 mins.; Lieut. Shepherd 8 min.; Lieut. Cholmondeley 13 mins.; Lieut. Martyn 25 mins.; Lieut Stopford 12 mins. On Short biplane 402, Lieut. Pepper 5 mins.; Asst.-Paymaster Trewin two 5 mins.; Lieut. Hubbard 15 mins.; Major Gerrard, R.M.L.I., 5 mins. and with Lieut Atkinson 10 mins.; Lieut. Winfield-Smith 10 mins.; Lieut. Lushington, R.M.A., 10 mins.

R.F.C. (Lark Hill).—Major Brooke-Popham out on 205 (late "B.E.5") 10 mins., putting in fine show. Machine has Renault engine and gives excellent results. Lieut. Fox, R.E., out on another "B.E.," with Gnome engine, for 30 mins. three flights all told, after coming down near Fargo Wood owing to engine trouble.

R.F.C. (Farnborough).—Capt. Raleigh on Bréguet, out morning and afternoon, making long flights. Major Moss, Capt. Reynolds, and Lieut. Herbert all flying Farman 207. Capt. Reynolds one flight of 20 mins. with Lieut. Herbert as passenger. Mr. de Havilland making long trips all day long on B.E.2, taking passengers. Airship "Delta" out making several trips. All out again in evening flying till dark.

Hendon.—At Grahame-White School work started 9.35 a.m. Messrs. Wilson and Small doing straights. Major Madocks and Mr. Howard-Wright doing circuits with Instructor Noel. Later, Lieut. Small, Major Madocks and Mr. Clark rolling under Mr. Noel's supervision.

In afternoon, Mr. Wilson doing circuits, also figures of 8, under Mr. Lewis Turner; Messrs. Fuller and Hollscher did some good flying and started their brevet tests.

At Deperdussin School. In morning Messrs. Phelps and Whitehouse and Lieuts. Hooper and Brock each did four turns on Taxi No. 1. Mr. Brock (instructor) took up No. 4 machine for circuits. In afternoon Mr. Ware put in good work on Deperdussin No. 4, making excellent straights and circuits, and neat landings. Lieut. Tucker attempted brevet test, but did not quite carry out his figures of eight satisfactorily.

At W. H. Ewen School.—Pupils out at 9.30 a.m.. Mr. L. Russell on monoplane No. 1 straights and hopping. Mr. Sydney Pickles out with the 35-h.p. Caudron and pupils on this machine had continuous day's practice. Capt. Chamier, Lieut. Eric Conran and Mr. H. James numerous flights. In afternoon Mr. L. Russell and Mr. Lawford out on a school monoplane, while Capt. Chamier, Lieut. Eric Conran and Mr. H. James were on the 35-h.p. Caudron. Another Caudron brevet was won in the afternoon, when Dr. D. Edmund Stodart, senior assistant at the Middlesex Hospital, who has been flying under the name of "Edmund," passed his tests in excellent style, flying at 300 feet. He handled the machine beautifully, and made some very pretty banked turns. Dr. Stodart, while at the school, has also shown himself to be quite a capable flier on the school Blériot and Deperdussin monoplanes. This makes the fourth Caudron brevet at the school during the last three weeks. In evening Mr. Sydney Pickles doing exhibitions on 35-h.p. Caudron, taking up as passengers Capt. Chamier, Mr. Allan and "Winkles" Lewin. In one case combined weight of aviator and passenger was 23 stone, good proof of efficiency of 35-h.p. Caudron.

At Blériot School, Messrs. Gandillon, Gratien and Reilly at work all day. M. Gandillon promoted to L.B.3 for circuits. Messrs. Gratien and Reilly doing well on No. 1 taxi, and Mr. Sacchi straights on L.B.3.

At Blackburn School, Dr. Christie good practice with brevet machine. Mr. Scott making straights. All went well with Mr. Scott until on finishing a flight, the sun in his eyes and a remnant of mist caused him to mistake No. 2 for No. 1 pylon, and in correcting his direction landed rather heavily, carrying away skid and putting machine out of commission. Lieut. Spink out rolling on brevet 'bus.

At Jameson School, Mr. Temple out rolling and making straights on Blériot.

Brooklands.—At Sopwith School, in early morning, Mr. Hedley out first on school Farman testing before handing over to Mr. Howard Wright, who then flew some good circuits and small figures of 8. In evening the Sopwith biplane out carrying passengers, Mr. Sopwith flying over surrounding country at 2,000 ft. Later, Mr. Hedley out with pupils on Farman, followed by Mr. Howard Wright.

At Hanriot's, about 3 p.m., Mr. Sabelli arrived from Hendon on single-seater, doing beautifully banked turns before landing. Later, Mr. Sippe flying for half an hour on same machine, putting up performance which, as usual, was a pleasure to watch.

At Vickers School, Mr. Barnwell out first on No. 2, followed by Lieut. de la Ferté, who put in good straights and curves.

Bristol School.—Mr. Bendall with Mr. Hall, Capt. Pigot and Major Forman. Mr. Merriam with Capt. Pigot and Major Forman and Mr. Hall. Pupils flying were Capt. Styles, Lieut. Pretyman, Mr. Payze, and Capt. Reid.

Lark Hill (Bristol School).—Mr. Harrison for trial. Then with Messrs. Greig. Penfold, Lieuts. Sabri, Aziz, Fethe, and Solvet. Mr. Harrison again in afternoon with Capt. Lucina. Mr. Pizey on side-by-side machine with Lieut. Hall, Capt. Lucina, and Lieuts. Sabri and Fethe. Lieut. Hall on tandem. Mr. England tuition to Lieuts. Sabri, Fazel, Solvet, Aziz, and Fethe. Mr. Busteed several circuits on new monoplanes with and without passengers.

Eastchurch.—Lieut. Briggs, R.N., with Lieut. Seddon as passenger, out on Short 38 for 30 minutes. Electricians Deakin and Bobbit doing straights on School machine. Lieut. Briggs took two passengers up in turn in the evening.

Waterloo (Liverpool).—Messrs. Birch and Hardman both did all tests for their certificates in presence of newly-appointed observers. Mr. Birch also went up to 1,000 ft., from which height he planed down with engine switched off. A fine performance. Mr. Melly had two-seater out also, doing several figures of eight about 400 ft. up, but had trouble with plugs.

Windermere.—Mr. Adams took "Water Hen" out for short flight, but found gusts tricky.

TUESDAY, October 8th.

R.F.C. (Central School).—Fresh westerly wind, misty early morning, but soon cleared. On Maurice-Farman biplane 411, Lieut. Cholmondelev 10 mins.; Lieut. Martyn 14 mins.; Lieut. Longmore, R.N., 10 mins.; Lieut. Shepherd 15 mins.; Lieut. Stopford 13 mins.; Major Trenchard 15 and 20 mins.; Lieut. Waldron 15 and 30 mins., up to great height; and Lieut. Young 10 mins. On Short biplane 402, Major Gerrard, R.M.L.I., with Chief Mechanic Pack 7 mins.; Lieut. Hubbard 14 mins.; Lieut. Pepper 13 mins.; Lieut. Courtney 11 mins.; Asst.-Paymaster Trewin 7 mins.

R.F.C. (Lark Hill).—Lieut. Fox, R.E., out on 203 for 35 mins., two flights, one with Air Mechanic May as passenger for 27 mins. Lieut. Fox later gave another fine display, taking up Lieut. Bulwer, R.E., as passenger; two other trips alone. Later, Lieut. Wadham on 205 for 25 mins., at good height.

R.F.C. (Farnborough).—Early morning very misty, Mr. de Havilland on B.E.2 taking passengers for long flights. Airship "Beta" out several good trips. About 11 a.m. Mr. Willows brought out new baby airship for trial trip, made an ascent but engine not working properly, so returned to shed. In afternoon Mr. Gordon Bell out on new British Deperdussin, made long flight, and in landing broke wheel. Mr. Sopwith arrived from Brooklands on Sopwith biplane. Major Moss, Capt. Reynolds and Lieut. Herbert all out on Maurice Farman 207, flying well. Lieut. Shephard out on 70-h.p. Bréguet. Mr. Gordon Bell several trips on new Short tractor biplane. Airship "Beta" out all afternoon, making good flights.

Hendon.—At Grahame-White School, very foggy morning; school started 8.30, Mr. Howard-Wright flying circuits under Instructor Noel. At 9.45, Mr. Wilson doing circuits with Mr. Noel, later starting brevet tests, going over 200 ft.

At Deperdussin School Messrs. Phelps and Whitehouse and Lieuts. Brock, Hooper, and Mapplebeck all out on Taxi No. 1, and are practically ready for Taxi No. 2

At W. H. Ewen School.—Too windy for school work, Mr. Sydney Pickles during afternoon made two fine exhibition flights on 35-h.p. Caudron in strong wind. In second he switched off at 500 feet, making a good landing.

Brooklands.—At Sopwith School, Mr. Hedley in morning for half an hour on school Farman, followed by Mr. Howard Wright, who handled machine in excellent manner. In evening Mr. Howard Wright passed first half of brevet tests in first class style. In afternoon Mr. Sopwith out on Sopwith biplane for half an hour taking as passenger Mr. Merriam, chief of Bristol School. Later, Mr. Sopwith flew machine over

to Farnborough, climbing to 1,000 ft. in under 3 mins. with passenger.

At Hanriot's, in evening, Mr. Sabelli out for an hour on single-seater, flying wide, cross-country circuits.

At Vickers School, Mr. Barnwell first out on No. 2, then handed over to Capt. Stott, who is getting on well. Mr. Barnwell then out on Farman putting in a lot of instruction work with Mr. Corballis. In evening, Mr. MacDonald on No. 6 machine doing good circuits with passenger. Mr. Barnwell had slight mishap on No. 2 machine. In trying to avoid machines outside sheds, and owing to side wind, ran into fence and broke propeller, wing, and landing chassis very slightly, but for steel construction of machine it would have been a very bad smash, and it was wonderful how well the machine stood up considering severity of bump.

Bristol School.—Mr. Merriam with Capt. Pigot. Mr. Bendall with Major Forman. Mr. Payze alone. In evening Mr. Merriam with Capt. Pigot and Mr. Hall. Mr. Bendall with Major Forman, and Capt. Pigot, Capt. Styles and Lieut. Pretyman alone. Capt. MacDonell (late pupil) up with passenger for 15 mins. Mr. Payze and Mr. "Darracq" alone.

Lark Hill (Bristol School).—Mr. Harrison out with Mr. Lywood.

Eastchurch.—No flying early morning on account of fog. Later on Lieut. Seddon, R.N., took A. B. Minter as passenger up to 5,287 ft. on Short 38; afterwards Lieut. Briggs took same machine up to 5,100 ft., and glided from that height with engine off. Lieut. Grey, R.N., out on Deperdussin. Lieut. Courtney, R.N., got brevet in excellent style. Lieut. Byrne, R.N., did first half of brevet. New Bristol biplane, with Mr. Eric Harrison as pilot, went for height test with Lieut. Malone as passenger.

Windermere.—"Water Hen" out with passengers, piloted by Mr. Adams. Later on Lieut. Trotter got in useful practice on same machine.

WEDNESDAY, October 16th.

R.F.C. (**Central School**).—Strong wind early morning, no flying; clear. Wind moderate in evening. On Maurice-Farman biplane 411, Lieut. Longmore, R.N., 5 and 10 mins. On Short 402, Lieut. Lushington, R.M.A., 12 mins. and 22 mins.; Lieut. Courtney 19 mins. and 18 mins.; Lieut. Pepper 9 mins.; Asst.-Paymaster Trewin 9 mins.

R.F.C. (**Lark Hill**).—Lieut. Fox, R.E., on 203. Lieut. Ashton afterwards took over 203 for 20 mins. Later, Lieut. Fox on 203 again with Lieut. Lawrence as passenger. Capt. Allen out on 205, after which Lieut. Wadham took over machine. Lieut. Fox with Lieut. Lawrence on 205 15 mins., after which Major Brooke-Popham on same machine. Later in evening Lieut. Wadham made splendid flight on 205 for 35 mins. at 2,000 ft. Major Brooke-Popham on same machine for 20 mins. with Lieut. Lawrence as passenger, after which Capt. Allen made a trip.

R.F.C. (**Farnborough**).—Early, very misty. Airship "Beta" came out and made several long trips. Mr. Willows out on new baby airship, but had trouble with engine so did not fly. Mr. de Havilland on B.E.2, taking passengers, doing fine banked turns at high speed. Airship "Beta" out all afternoon making long flights. Evening, Mr. Cody returned from Lewes. Major Gerrard, R.M.L.I., out on Short tractor biplane and started for Upavon, but owing to darkness had to return. Airship "Delta" out for hour's flight, making good landing in dark.

Brooklands.—At Sopwith School, during morning, Mr. Hedley out for half an hour with Major Cameron, but fog too thick to continue. In evening no flying owing to gusty wind.

At Vickers School, Mr. Barnwell out with Mr. Corballis on Farman in nasty fog. In evening Mr. Barnwell on No. 3 for test flight, but too much wind for pupils.

Bristol School.—Mr. Merriam with Major Forman and Lieut. Boyle. Mr. Bendall with Major Forman and Lieut. Boyle. Capts. Styles and Boger alone. Latter, unfortunately, side slipped into river, smashing machine, but, fortunately, escaping unhurt. In evening Mr. Merriam with Lieut. Boyle, but weather too bad for pupils.

Lark Hill (Bristol School).—Mr. Pizey with Capt. Lucina on biplane, Lieut. Hall on side-by-side monoplane. Mr. Harrison with Messrs. Lywood and Penfold, Mr. England taking Mr. Lywood. Lieut. Hall on monoplane. Capt. Grace and Mr. Bettington passed tests for certificates. Lieut. Hall flying. Messrs. Penfold and Lywood up with Mr. Pizey.

Hendon.—At Grahame-White School, 7.5 a.m., Lieut. Birch rolling. Messrs. Clark and Howard-Wright doing straights with Instructor Noel. In afternoon, Lieut. Small doing straights with Mr. Lewis Turner.

At Deperdussin School in morning, very foggy, but later Mr. Brock up on Deperdussin No. 4, but found it too bumpy for pupils. Messrs. Spratt and Ware and Capt. Tucker each did eight straights. In evening wind dropped, allowing Messrs. Spratt and Ware and Captain Tucker to do straights on No. 4. Mr. Phelps had Taxi No. 1 to himself, and made four trips.

At W. H. Ewen School.—Pupils out at 6.30 under instruction of Mr. Sydney Pickles. Capt. Chamier and Mr. H. James on 35-h.p. Caudron, each ten landings. In evening Mr. Pickles again out with 35-h.p. Caudron and after test flight with pretty banked turns machine was handed over to Capt. Chamier who made four straights with good landings. Mr. H. James also straights, flying confidently and landing well. Lieut. Eric Conran six straights on same machine, flying skilfully.

At Bleriot School, Messrs. Reilly and Gratien on taxi.

At Jameson School, Mr. Temple doing straights.

Eastchurch.—In morning Lieut. Byrne, R.N., attempted 2nd half of brevet test, but got lost in the fog, which suddenly came on while he was flying and forced him to land outside Aerodrome, where he slightly damaged landing gear. Later on Lieut. Briggs, R.N., with Lieut. Seddon, R.N., as passenger. Flew 38 for half-hour. Lieut. Malone, R.N., out on 38. Eng.-Lieut. Briggs took up Capt. Barnby, R.M.L.I., on 38 for short trip. Lieut. Grey, R.N., out on Deperdussin. Lieut. Parke, R.N., flew school machine back to aerodrome from marshes where it had landed in fog. Later Lieut. Byrne finished brevet tests in nasty wind.

Waterloo (**Liverpool**).—Mr. Melly took "Y"-engined machine to Southport and back, 35 miles, calling at Mr. Pochin's hangar. On his return Mr. Birch did some figure eights on same machine at 1,000 ft.

Windermere.—Mr. Adams took reconstructed "Sea Bird" out with passengers. Great improvement. In evening Lieut. Trotter doing good figures of eight on "Water Hen."

THURSDAY, October 10th.

R.F.C. (**Central School**).—Thick fog early, clearing off about 10 a.m., then moderate west wind. On Avro biplane 404, Capt. Fulton, R.F.A., with Lieut. Anderson on practice ground 25 mins.; with Air Mechanic Hodgson also on practice ground 35 mins. On Avro 406, Capt. Fulton with Air Mechanic Higginbottom 5 mins. On Maurice Farman 411, Lieut. Longmore 7 mins.; Lieut. Hubbard 20 mins.; Lieut. Martyn 12 mins.; Lieut. Young 6 mins.; Major Trenchard 20 mins. On Maurice Farman 403, Lieut. Longmore, R.N., 6 mins., alone and with Lieut. Lushington, R.M.A., 10 mins.; Lieut. Waldron 9 and 25 mins.; Lieut. Winfield-Smith 10 and 15 mins.; Lieut. Lushington 16 and 12 mins. On Short 402, Lieut. Courtney 23 mins.; Lieut Pepper 5 mins.; Asst.-Paymaster Trewin 14 mins.; Lieut. Atkinson 10 mins. Major Gerrard, R.M.L.I., arrived from Farnborough on Short tractor 413.

R.F.C. (**Lark Hill**).—Lieut. Fox, R.E., on 203 in the evening 15 mins., after which Lieut. Ashton on same. Later, Lieut. Fox two more flights, taking up Air Mechanic May and Lieut. Bulwar as passengers. Lieut. Wadham on same machine 20 mins., taking up Air Mechanic Martin as passenger. Later, Lieut. Lawrence made three good flights, 30 mins., with Air Mechanic Beard as passenger. Capt. Allen on same machine 20 mins., after which Lieut. Wadham out again with Air Mechanic McCudden as passenger.

R.F.C. (**Farnborough**).—Morning very misty, but cleared about 10 a.m. Airships "Beta" and "Baby" out for long flights. Lieut. Playfair on 70-h.p. Brégüet rolling, struck ditch and broke propeller. Mr. de Havilland on B.E.2 flying well, taking passengers. Mr. Cody out on military biplane several circuits, taking passengers, reaching good height each time, also dropping messages out on to Army hangars. Major Gerrard, R.M.L.I., left for Upavon on Short tractor biplane.

Brooklands.—No flying in morning owing to thick fog.

At Martin-Handasyde, during afternoon, Mr. E. Petre out for an hour and a half on monoplane.

At Sopwith School, in evening, Mr. Hedley out with pupils on school Farman for about an hour. Major Cameron showing distinct promise and now promoted to the pilot's seat. Later Mr. Howard T. Wright took over machine and passed second half of brevet tests; no fault could be found with his flying, which is remarkable considering he had but little practice on this type of machine. He now joins the select number of constructor pilots, which includes Mr. Cody, Mr. Sopwith, Capt. Wood, Mr. Grahame-White and Mr. Melly.

At Vickers School, Mr. Barnwell out on Farman with Mr. Corballis, then out on No. 3, and handed over machine to Lieut. de la Ferté, who put in useful straights and curves. Mr. Knight then out on all-British No. 5 for test flight after overhaul for Michelin Cup

Bristol School.—Mr. Bendall tried conditions, but not fit for school work. In afternoon Mr. Merriam testing and later with Lieut. Rodwell. Mr. Bendall with Major Forman and Lieut. Boyle. Mr. Merriam with Lieut. MacLean and Capt. Pigot. Capt. Styles and Mr. "Darracq" alone.

Lark Hill (Bristol School).—Mr. Pizey on biplane. Mr. Pizey up with Lieut. Fielding, Mr. Harrison taking Capt. Lucina and Messrs. Lywood and Penfold. Lieut. Hall did first part of certificate, flying well. Mr. Harrison up with Mr. Lywood. Mr. Pizev two trips with Lieut. Fielding, M. Jullerot for trial on two-seater tandem. Lieut. Hall completed tests for certificate. Mr. Busteed testing new monoplane, climbing to 4,500 ft. Mr. England testing biplane recently erected.

Hendon.—Grahame-White School out 6.30. Mr. Howard-Wright doing straights. Lieuts. Birch and Major Madocks rolling, Mr. Clark, Lieut. Small, Capt. Hallahand and Major Madocks doing circuits with Instructor Noel. In afternoon, Capt. Hallahan flying with Mr. Lewis Turner.

At Bleriot School, Mr. Gandillon out on No. 3, but, together with Mr. Gratien on No. 2, found the wind too strong.

At Deperdussin School, east wind blew away fog early in morning, but became too strong for rolling practice. Instructor Brock did a circuit or two, after which Messrs. Spratt and Capt. Tucker each did straights on No. 4. Later Mr. Phelps and Captain Macdonell managed to put in a little rolling. In evening Instructor Brock up for circuits on No. 4. Messrs. Spratt and Ware and Capt. Tucker each put in some circuits. Mr. Spratt attempted a figure of eight, but wind sent him towards sheds, so he had to content himself with another circuit. Pupils altogether are showing fine progress.

At W. H. Ewen School flying commenced at 6.45 a.m., when Mr. Sydney Pickles had 35-h.p. out. After test flight Capt. Chamier, Lieut. Eric Conran, and Mr. H. James each eight straights. In evening Mr. Pickles again out with 35-h.p. Caudron. Lieut. Eric Conran and Mr. H. James each several straights with good landings. Mr. Pickles after very fine exhibition of flying gave passenger flight to Mr. Zubiaga, who immediately after joined school.

Eastchurch.—Lieuts. Grey and Malone, R.N., on Deperdussin and Short 38, and in early morning mist. Lieut. Seddon, R.N., up for 2 hrs. on 38, reaching a height beyond the scale of his aneroid—7,000 ft. Lieut. Malone with Lieut. Clark-Hall, R.N., as passenger, up on 38, and later with Mr. C. G. Grey. Eng.-Lieut. Briggs with Carpenter Collins up 2½ hrs., attaining height of 5,200 ft. Naval Bristol did hour's test flight before delivery to the Admiralty. Lieut. Grey out on Deperdussin (inlet valve blew out and cracked piston). Mr. Ogilvie out on N.E.C.-Wright, and Mr. Jezzi with his wife as passenger on the J.A.P.-Jezzi.

Windermere.—Flying at intervals all day. Lieut. Trotter took "Water Hen" out several times. Mr. Adams took out "Sea Bird" with passengers. At one time both flying together. "Sea Bird" evidently much faster machine, in spite of a heavy passenger. (N.B.—First air race over Windermere.)

FRIDAY, October 11th.

R.F.A. (Central School).—Very thick fog early, no flying in morning. Light south-west wind. On Avro 406, Lieut. Smith-Barry 15 mins.; Air Mechanic Higginbottom 15 mins.; Capt. Risk 15 mins.; Capt. Fulton, R.F.A., with Lieut. Cholmondeley 20 mins and with Lieut. Anderson 25 mins. on practice ground. On Avro 404, Capt. Fulton with Lieut. Shepherd 25 mins. on practice ground; Lieut. Abercromby 15 mins.; Capt. Risk 5 mins. On Maurice Farman 411, Lieut. Young 20 mins.; Lieut. Hubbard 30 min.; Lieut. Longmore, R.N., with Major Higgins 10 and 7 mins.; Lieut. Martyn 30 mins.; Lieut. Winfield-Smith 10 mins.; Lieut. Lushington, R.M.A., 17 mins. On Maurice Farman 403, Lieut. Longmore, R.N., with Master Mechanic O'Connor 7 mins.; Master Mechanic O'Connor 8 and 10 mins. On Short 402, Lieut. Courtney 9 mins.; Lieut. Pepper 12 mins.; Lieut. Atkinson 13 mins. On Short tractor 413, Major Gerrard, R.M.L.I., with Capt. Salmond 10 mins. and with Lieut. Abercromby 12 mins.; Capt. Salmond 13 mins.; Capt. Fulton 5 mins.

R.F.C. (Lark Hill).—Lieut. Fox, R.E., out in evening with Lieut. Fielding. Lieut. Ashton on 203 wth Air Mechanic Webb, but when about 50 ft. up the machine suddenly dipped smashing undercarriage, but fortunately nothing happened to pilot or passenger. Lieut. Lawrence on 205 with Capt. Lucina, after which another flight with same passenger for one hour. Capt. Allen on same machine. Lieut. Lawrence two more flights with Sergt. Sharpe and Air Mechanic Turner. Lieut. Ashton on Maurice Farman for 20 mins., with Air Mechanic King as passenger, after which alone 17 mins. Air Mechanic McCudden on same machine, putting in some very good flying, after which Lieut. Ashton took over machine, with Air Mechanic Strugnell as passenger. Sergt. Ridd afterwards took Maurice Farman and did good flying. To finish evening up, Lieut. Ashton took up Capt. Conner and another passenger.

R.F.C. (Farnborough).—Airships "Beta" and "Baby" out for several long trips. Mr. de Havilland on B.E.2, making long flights all day, several times with passenger.

Brooklands.—Thick fog prevented any flying in morning.

At Hanriot's, in afternoon, Messrs. Sippe and Sabelli put in lot of flying on the racing Farman with Rossel-Peugeot engine. Both these pilots, whose skill on the monoplane need not be mentioned, seemed to be equally at home on the old box-kite. Later, Mr. Alcock took over machine and flew good straights.

Mr. Pashley out during afternoon flying well on old Sommer, to which extensions have been fitted.

At Vickers School, Mr. Barnwell in evening on No. 3 for test flight, but owing to the fog no pupils out.

Bristol School.—Mr. Bendall with Major Forman and Lieut. MacLean. Mr. Merriam with Lieut. Boyle. Capt. Pigot hopping alone. Capt. Styles and Mr. "Darracq" flying.

Lark Hill (Bristol School).—Foggy afternoon. Mr. Pizey out for trial.

Eastchurch.—Lieut. Briggs, R.N., with E. R. A. James, up for fifteen minutes in evening. Rest of the day fog.

Waterloo (Liverpool).—Messrs. Melly and Birch both out on the "Y" machine doing figure eight's 1,000 ft. up

Windermere.—Lieut. Trotter went through all tests for his certificate, but necessary observers could not be secured.

Hendon.—"Too foggy for flying."

SATURDAY, October 12th.

R.F.C. (Central School).—Fine, clear and calm. On Avro 404, Capt. Fulton, R.F.A., with Air Mechanic Hodgson 45 mins., and with Lieut. Anderson 30 mins., on practice ground and with Lieut. Shepherd 40 mins., also on practce ground; Lieut. Anderson 6 and 9 mins. On Maurice Farman 411, Major Higgins 50 mins. splendid flying and reaching an altitude of 6,200 ft.; Lieut. Lushington, R.M.A., 32 mns. On Short 402, Lieut. Pepper 4 mins. and 14 mins.; Major Gerrard, R.M.L.I., with Lieut. Allen 6 mins.; Lieut. Atkinson 13 mins. and 5 mins.; Lieut. Allen 6 mins. On Short tractor 413, Capt. Salmond 30 and 15 mins.; Major Gerrard 12 mins. alone and with Air Mechanic Bannister 10 mins.

R.F.C. (Lark Hill).—Lieut. Lawrence out early in morning on 205 for 35 mins., taking up Air Mechanic Morris.

R.F.C. (Farnborough).—Very misty. Mr Cody on military biplane several circuits, and then off for Michelin prize.

Brooklands.—At Sopwith School, Mr. Hedley first out in afternoon with pupils, Major Cameron and Capt. Salmond, and afterwards with several passengers.

At Martin-Handasyde's, Mr. Petre out in afternoon flying flying well over surrounding country at about 3,000 ft.

During the afternoon bomb dropping and accurate landing competition was got up for benefit of quite a crowd of spectators, the winner being Mr. Sopwith on the Farman biplane; second, Mr. Pashley on Sommer biplane.

At Vickers School, Mr. Barnwell on Farman with Mr. Corballis and Mr. Soames, in morning, for instruction, and again in evening with pupils, who all show great promise. Mr. Knight also out on Farman putting in useful work with pupils on No. 5, later in evening doing good circuits over surrounding country. Lieut. de la Ferté out on No. 3 machine doing great amount of flying.

Bristol School.—Mr. Bendall with Lieut. Boyle. Lieut. Reed, Capt. Styles, Mr. "Darracq," Mr. Payze, Lieut. Pretyman, and Capt. Pigot alone.

Hendon.—At Deperdussin School. Weather too foggy for School work. At noon, however, fog lifted, and Instructor Brock took up No. 3 to test conditions. He followed this up by making some good flights on No. 4 machine. Signor Nardini took up passenger in the two-seater during afternoon, and also entered for the speed handicap.

At W. H. Ewen School.—Too foggy for pupils, but in afternoon Mr. Sydney Pickles made several good exhibition flights on the 35-h.p. Caudron, while M. Galy was out on the 45-h.p. Caudron two-seater, doing good flying and passenger carrying.

Eastchurch.—Eng.-Lieut. Briggs, R.N., up with A. B. Stevens, 20 minutes, with Electrician Bradford 20 minutes, with Mr. Florence 20 minutes, with Capt. Barnby, R.M.L.I., one hour, attaining 3,050 ft. height; finishing with several glids with engine off. Lieut. Seddon, R.N., took A. B. Minter as

passenger, 6,100 ft. Lieut. Malone, R.N., on Short 38; triple twin biplane with extensions, and on Short 34 testing controls. Electrician Deakin and Boatswain Bobbit obtained brevets on School machine.

At Jameson School, Mr. Temple out rolling.

Waterloo (Liverpool).—In misty weather, Mr. Birch flew inland four or five miles to his home at Sefton, landed, had tea, and then returned. He also gave a fine exhibition of banking and spiralling, being in the air for over twenty minutes, without going out of sight of hangars.

Windermere.—"Water Hen" busy, steered by Mr. Stanley Adams in morning, and by Lieut. Trotter in afternoon. Later on Major Brocklehurst and the Rev. S. Swann were secured as observers, and Lieut. Trotter did five figures of eight round mark boats, and the height and alighting tests with flying colours.

SUNDAY, October 13th.

Brooklands.—At Flanders School, in morning, Mr. Raynham out for over an hour on monoplane flying over Weybridge and Byfleet at a height of well over 3,000 ft. In the altitude competition Mr. Raynham reached 3,600 ft.

At Martin-Handasyde's, during the afternoon Mr. Petre was out carrying passengers. Mr. Petre gained second place in the altitude competition, reaching 2,900 ft.

At Sopwith School, in afternoon, new Wright type biplane, built by Mr. Sopwith, was out being tested. The machine has been fitted with a cosy body for pilot. A 40-h.p. A.B.C. motor has been fitted, which flies machine as strongly as ever, and does the manufacturers great credit.

During afternoon Mr. Pashley was out on Sommer flying outside aerodrome at a height of 1,600 ft.

At Blackburn School, Dr. Christie, Messrs. Buss and Glew out rolling.

Bristol School.—Mr. Bendall found conditions too bad for school work. Later on tried again, and sent Lieut. Reed, Mr. "Darracq," Capt. Styles, and Mr. Payze for straights.

At Vickers School, Mr. Knight out early on No. 5 tuning up. In afternoon any amount of flying was put in by school. Mr. Barnwell out with Mr. Jenkins, Mr. Corballis and Mr. Soames on Farman. Lieut. Beatty and Mr. Barnwell out on No. 6, and Mr. Knight on No. 5. Capt. Wood was also out on No. 5.

Hendon.—Fine exhibitions. See special report.

At W. H. Ewen School under the instruction of M. Beaumann, Mr. L. Russell and Mr. Lawford put in some good practice on Monoplane No. 2, doing good straights at fifteen feet and making rapid progress.

Eastchurch.—Mr. Alec Ogilvie with Mr. Griffith Brewer as passenger on N.E.C.-Wright, afterwards with Mr. Guy Fowler. Mr. McClean took two lady passengers in turns on 70 tractor.

Mr. Cody at the Caxton Hall.

Mr. Cody, who in Michelin contests has already won £2,700, and has this year been awarded a total sum of £10,000 from the War Office, will, on November 8, at the Caxton Hall, give a lecture on "What England Must Do to Obtain Command of the Air." The lecture is being arranged by the Kite and Model Aeroplane Association, and the proceeds will go towards providing the equipment of a Territorial War Kite section.

Mr. Cody is a breezy and attractive lecturer, and he is going to say some very interesting things on this occasion. The cause, moreover, is a worthy one.

Dopes and Doping.

Mr. A. J. A. Wallace Barr writes:—"I have read with interest in your last week's issue the letter of Messrs. Jenson and Nicholson, Limited, referring to my notes on 'Dopes and Doping,' and I hope that the chemical composition of which they write 'we have been experimenting with new chemical compositions, and we are inclined to believe that we have nearly solved the problem, which is of such far-reaching importance to aviators and manufacturers,' will be of a more practical nature than the opinions they express upon the subject of dopes in general.

"In the first place, I said nothing about a 'metallic, elastic film,' and I fail to see in what way a dope applied 'in the course of manufacture'—by which I presume they mean the construction of the planes—can prevent 'invisible disintegration which can hardly be perceived with the naked eye.' This appears to be a very subtle point which I do not understand at all, and I shall be interested to learn how much 'efficiency' is gained by so doing.

"Their remarks on sagging are interesting, for they say 'the main point when sagging does take place is that the dope should be sufficiently plastic to prevent fractures." They must really carry their experiments a little further, and produce a dope, such as I have in mind, which does not allow fabric to sag, and therefore there would be no reason for this being 'sufficiently plastic.'"

An Important Correction.

Owing to an error in type-setting the advertisement of the Chauvière propellers which appeared last week under the heading "Miscellaneous" bore the address of the previous agents, Messrs. Goodchild and Partner, instead of that of the present agents, The Integral Propeller Co., Ltd. It should be noted that the last-named firm are now sole agents for the famous Chauvière propellers in this country, and all inquiries about these propellers should be sent to them.

Aviation Insurance.

Mr. H. E. Adams, of Bray, Gibb and Co., reports enormous business in aviation insurance. Their new Primus policy, "officially approved" by the Royal Aero Club, is going well. By the way, can the R.Ae.C. approve and have its name tacked on to anything at all commercially inclined? Anyhow, it is of interest to note that this firm pays its claims very quickly, and several large amounts have been paid out quite recently. Mr. Adams has got quite 90 per cent. of the trade, and, considering the risks, the premiums are surprisingly low. It should be remembered that insurances for short periods, and even for single flights, can be effected.

The Motor and Aviation Co., Ltd.

The title of this firm is all-embracing, as, indeed, the business actually is. The managing director is Mr. F. Henry Fowler, a certificated aviator, who for four years was general manager of the Fiat Motor-Cab Co. Having obtained his ticket on a biplane at the Grahame-White School, he is now mastering a 25-h.p. Anzani Blériot. His usual daily routine is: up at 5 a.m., practising until 8 or 9, down to the office at 62, St. Martin's Lane about 10 o'clock to get through his business correspondence. The afternoon usually consists in giving demonstration runs and selling cars, with another rush out to Hendon between 4 and 5 p.m. for more practice. One fine cold afternoon last week the writer was tempted to take a run out to Hendon on a 40-h.p. Nordenfelt, whose pace, under Mr. Fowler's guidance, was quite enough to gratify most people. This car, by the way, is for sale, cheap, and should prove a good investment to any aeronautical establishment wanting power and reliability for the conveyance of mechanics and spares to scenes of unpremeditated discontinuations. Mr. Fowler seems to have a fine business in embryo, and readers requiring second-hand bargains in cars, aeroplanes, engines, and accessories would do well to note the address.

The Handley-Page Record.

The amount of work done by the Handley-Page monoplane recently is quite extraordinary. On Sunday last, when Mr. Clift had finished fitting a compass the following passengers were taken up:—The Misses Caws, Messrs. Nicholson, Fletcher, and Meredith, and Lieuts. Dolphin and Robinson. The machine was banking superbly of its own accord, and gliding at a very good angle, which is estimated at 1 in 6.5. On Sunday twelve passengers were taken up, including Mr. Blackburn, of the Blackburn Aeroplane Company, and Mr. Richard Gates.

As a trial for the machine two passengers were taken up at once, their weights being 135 lbs. and 92 lbs. respectively—figures verified by weighing the passengers at the Grahame-White works. The pilot's weight was 140 lbs., making a total of 367 lbs. live load. At the time the machine was carrying about two hours' load of petrol and oil-fuel, quite a noteworthy performance for a 50-h.p. Gnome monoplane. The flight with these two passengers lasted about twenty minutes, the machine flying out over the Edgware Road and the Welsh Harp at a height of about six hundred to a thousand feet.

Later in the day the machine left for Brooklands with Mr. Nicholson as passenger. Mr. Nicholson is a director of the well-known firm of Jenson and Nicholson, who manufacture "Robbialac," the self-drying enamel with which the machine is painted. The great advantage of this enamel is that it dries very quickly, and leaves a glossy surface without stoving the parts. For the parts round the engine it is very good, as it is unaffected by castor oil, and can be cleaned afterwards by merely being rubbed over with a rag. The flight to Brooklands took thirty minutes going, and only sixteen minutes coming back, which is somewhat of a record for a passenger flight in a 50-h.p. Gnome monoplane. The total number of passengers taken was 28 for the two week-ends.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.
For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.
Special PREPAID Rate—18 words **1/6**; Situations Wanted ONLY—18 words **1/-**. 1d. per word after.

PATENTS.

PATENTS. Instructive leaflet free, from Stanley, Popplewell and Co., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

ADVICE FREE on Patents and Trade Marks. Handbook gratis.—KING, Registered Patent Agent, 165, Queen Victoria Street, London.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, Fellow of the Chartered Institute of Patent Agents.) 2/- post free.—ARTHUR EDWARDS AND CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, Holborn, London, W.C. Established 1870. 'Phone 4536 Holborn.

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MODERN TUITION by means of our complete dual-control system, fitted to the latest types of aeroplanes, offers to the prospective pupil far more advantages than any other school in Great Britain.—THE SOPWITH AVIATION SCHOOL, Brooklands, Weybridge.

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£25 TWO types Tractor Biplane and Monoplane.
£50 INCLUSIVE. NOTICE.—We do not push pupils through in two or three weeks, but let them *practise* and become expert pilots. The owners share breakages.—COLLYER AND ENGLAND, Shoreham Aerodrome.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

DEPERDUSSIN AVIATION SCHOOL, HENDON. Largest monoplane school in England. Thorough tuition in flying by competent staff until R.A.C. certificate is obtained, including all expenses, breakage (if any), and third part insurance. SPECIAL TERMS to Army and Navy officers.—For particulars apply to the BRITISH DEPERDUSSIN AEROPLANE SYNDICATE, LTD., 30, Regent Street, Piccadilly Circus, S.W.; or at Hendon.

EASTBOURNE AVIATION CO. Tuition on genuine Blériot monoplanes and Bristol biplanes. Inclusive fee for one type, £65; for both types, £90. Practical workshop instruction. Passenger and exhibition flights arranged.—For full particulars apply THE AERODROME, Eastbourne.

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MACHINE FOR SALE.

FOR SALE, genuine Farman Biplane, 50-h.p. Gnome. Cheap for quick sale.—Box 445, THE AEROPLANE, 166, Piccadilly, W.

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THE Best Propellers—PERFECTA PROPELLERS.—Sole Agents: JAMESON, Aerodrome, Hendon.

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MACHINES. For immediate cash. Tractor Biplane, staggered planes and engine complete, two-seater, practically new and built to order. Sacrifice £150.—Box 448, THE AEROPLANE, 166, Piccadilly, W.

WANTED to buy immediately *for cash*, Monoplanes and Biplanes; must be very cheap and 1912 models with well-known engines. Clients waiting.—Address, PRENSIELL, Collindale Avenue, The London Aerodrome, Hendon, N.W.

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ENGINES.

28-H.P. Humber Aeroplane Engine, 3-cylinder, Bosch magneto, C.A. carburetter, propeller flanges; new; bargain; £35.—BROWN'S, 12, Bull Ring, Birmingham.

ENGINES. For immediate cash. Green 50-60-h.p., new, carburetter, magneto, etc., with maker's certificate of 2½ hours' continuous test, giving 55 h.p.; only done a few circuits. Cost £350; sacrifice £150. Box 447, THE AEROPLANE, 166, Piccadilly, W.

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WELL-KNOWN Certificated Aviator-Engineer gives good independent expert advice to students desirous of learning to fly, without any charge.—Address, 10, Rutland Park Mansions, Cricklewood, N.W.

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MECHANIC WANTED, must be first-class assembler of Farman Biplanes, and expert mechanic of Gnôme Engine, capable of keeping Farman Biplane fitted with Gnôme Engine in perfect running order for exhibition work.—LODER, 25, Bachelor's Walk, Dublin.

MISCELLANEOUS.

CLIFT COMPASSES. All the best cross-country fliers use Clift Compasses. The latest success is the "LEEWAY-INDICATING" COMPASS.—For particulars write ERIC CLIFT, c/o THE AEROPLANE, 166, Piccadilly, W.

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Special Exhibition and Passenger Flights every Thursday, Saturday, and Sunday afternoon, by well-known aviators.

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SATURDAY NEXT.

HENDON MEETING

(Under the Open Competition Rules of the Royal Aero Club.)

THE FOLLOWING RACES WILL BE FLOWN ON

SATURDAY, OCTOBER 19th, 1912, at 3 p.m.

(Weather permitting.)

NOTICE—The Contests will take place as near the hours set forth as condition permit.

PROGRAMME.

3 p.m.
EXHIBITION FLIGHTS BY COMPETITORS.

3.30 p.m.
Event No. 1.—ALTITUDE CONTEST.

4 p.m.
Event No. 2.—THIRD HEAT OF GRAND SPEED HANDICAP.

4.30 p.m. (Postponed from last Saturday, October 12.)
Event No. 3.—FINAL HEAT OF GRAND SPEED HANDICAP.

From 5 p.m.
EXHIBITION & PASSENGER FLIGHTS by C. GRAHAME-WHITE and Competitors.

THURSDAY AFTERNOON, OCTOBER 17th.
Special Exhibition Flights by well-known Aviators.

SUNDAY AFTERNOON, OCTOBER 20th.
Exhibition and Passenger Flights by C. Grahame White and Competitors.

COPIES OF THE OFFICIAL PROGRAMME may be obtained from the London Office, 166, Piccadilly, W., on Friday mornings, or will be sent post free on receipt of two penny stamps.

FIXTURES.

Thursday, October 24th—Special Exhibition Flights at Hendon.
Saturday, „ 26th—Second October Meeting.
Saturday, November, 2nd—November Meeting.
Tuesday, „ 5th—Grand Illuminated Night Flying and Firework Display (8 p.m.).
From November 9th—SPECIAL EXHIBITION and PASSENGER FLIGHTS, SPEED and ALTITUDE TESTS by C. Grahame-White and Well-Known Aviators EVERY SATURDAY and SUNDAY AFTERNOON until further Notice.

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THE AEROPLANE

1D WEEKLY

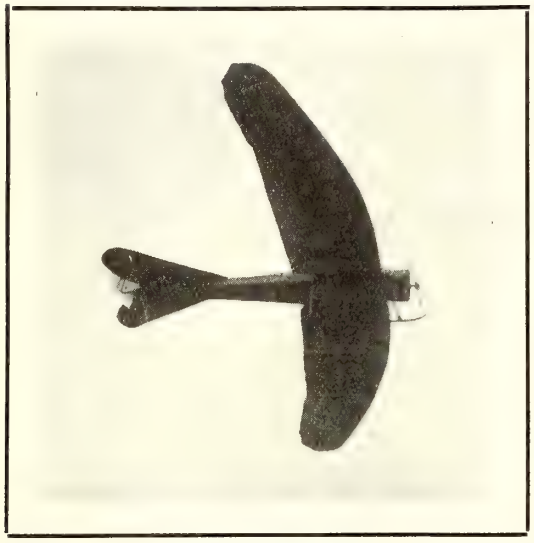
Edited by C. G. GREY. ("Aero-Amateur")

VOL. III. [REGISTERED AT THE G.P.O. AS A NEWSPAPER.] THURSDAY, OCTOBER 24, 1912. No. 17.

S. F. CODY AND HIS AIDS.



G.O.M. may stand for Grand Old Man, or Gainer of Michelins, either being equally applicable to Mr. Cody. The accompanying photographs are—(1) Mr. Leon Cody (chief engineer). (2) Mrs. Whittall (Mr. Cody's cousin, who does the covering of the planes). (3) Mr. Frank Cody (general assistant). (4) Mr. Fred May (managing director of the Green Engine Company). (5) Mr. Green (patentee of the Green Engine). All of whom have helped him to win the Michelin Prizes.



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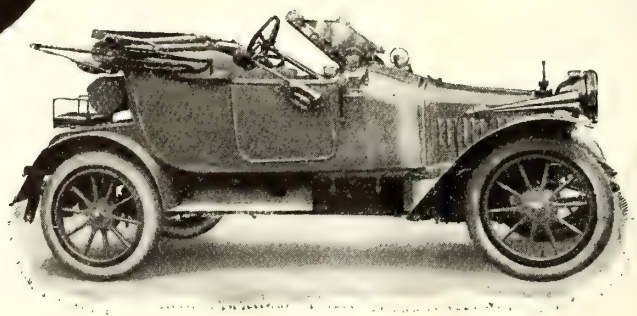
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Editorial and Advertising Office—166, Piccadilly. Telephone 5407 Mayfair. Telegrams—Aerofoil, London.

Some Personal Opinions on Practical Points.

In the following series of disconnected paragraphs the writer does not intend to lay down the law on anything affecting the theoretical or practical design of aeroplanes, but merely to give, as they come to mind, the personal opinions of various people, including himself, who have had a good deal to do with aviation. He hopes that these points may be of some interest to aviators and constructors alike, and that a few of them may prove food for thought, even if the arguments supporting the opinions are not convincing.

The chief idea in drawing attention to these points is to show how very far we are from that happy time when it is possible for any Government department to announce that certain designs for aeroplanes are to be standard pattern for either Service, and that such patterns are to be manufactured in large quantities to the exclusion of all others.

As to Monoplane or Biplane.

In the first place, there is the ever present question of whether monoplane or biplane is the safer. So far as natural stability is concerned, there does not seem to be anything to choose, but there is a very strong idea that it is possible to make a box-girder, such as a biplane, stronger and lighter than a king-post girder, which is, technically, the class to which the monoplane belongs. In ordinary engineering both classes of girder are used with equal success under certain circumstances.

One of our leading constructors remarked to the writer the other day that actually it was much easier to make a monoplane safe against sudden over-loads due to gusts than a biplane. His reason was that in building a monoplane one naturally puts in very large main spars to take the whole load, whereas in a biplane the spars are considerably smaller. But in a biplane, when one comes to work out the strains, one finds that the whole load carried by both planes is concentrated into compression strains on the top spars, so that actually the compression strain on the innermost section of the upper spars is quite as great as it is on the butts of monoplane spars. He pointed out, however, that a certain amount of this compression can be relieved by bracing the lower plane to the chassis, but he expressed his belief that in the majority of cases the wire bracing of the lower plane to the chassis, and even the compression struts on the chassis itself, are not strong enough to take as big a proportion of the load as they should do.

This argument seems quite rational, and the present confidence in biplanes seems to be chiefly due to the fact that all biplanes of to-day carry a much lighter load to the square foot than monoplanes, and consequently the loads are carried by a number of independent wires of small gauge, and are distributed through a number of comparatively light struts, though actually the factor of safety is probably no bigger in a biplane than in a properly designed monoplane. No true comparison can be drawn between the relative safety of monoplane and biplane until someone turns out a biplane as fast as a fast monoplane, and carrying the same load on the same surface.

At the same time it seems obvious that for very big machines the biplane has distinct advantages, as it gives large surface for reasonable over-all dimensions.

As to Strains on Fabric.

There is at the moment a good deal of interest being taken in fabric, and it is clear that the more efficient machines become, that is to say the more weight they are able to carry per square foot of plane surface, the more important the actual strength of the fabric becomes. In connection with this it may be well to point out that though a machine may be carrying a certain load per square foot of surface, it does not mean that fabric which will carry that load per square foot with a large factor of safety is necessarily safe for that particular machine.

It would be interesting to know definitely the proportion of the total load which is carried at various points on the plane. No doubt some of the excellent diagrams produced by M. Eiffel, and by the investigators at the National Physical Laboratory at Teddington, are exceedingly informative to scientific designers, but a plain statement as to the proportion of load carried at various points by various planes of various curvatures at various speeds would be very helpful to many of those rule-of-thumb designers who seem to turn out the most successful machines.

For instance, one may know that a certain very efficient machine is loaded up to 10 lbs. to the square foot and flies at 70 miles per hour, but it is not easy to discover from any published data the maximum pressure per square foot which the fabric of those planes has to stand. It is quite possible that the top surface just aft of the maximum camber may be carrying something like 30 lbs. to the square foot, while the top surface of the trailing edge is carrying practically nothing.

It would be still more interesting to find out how the load on the upper surface is affected by the lower surface. Thus, if one built a single-surfaced plane of the same camber as the upper surface of the plane already mentioned, and covered it with two thicknesses of fabric, as is done in the old type Farman machines, is the maximum strain on the

upper surface of this plane greater or less than it is on the modern type of plane where there is a gap of several inches between the upper and lower surfaces, and how do the strains go on a machine with a big camber to the upper surface and an almost flat under surface? Perhaps some scientific investigator will enlighten us on this question.

As to Warping Controls.

Until quite recently it has been accepted almost as an axiom that lateral control by warping the plane itself was considerably better in every way than control by ailerons, or by stabilising flaps of any kind, chiefly because it gives quicker control and does not cause as much drag on the side pulled down. Recently, however, it has been shown fairly conclusively that even a very large machine using balanced flaps, as in the Maurice Farman, can be quicker in answering its lateral controls than many machines with a very big warp. This fact, therefore, raises the question as to whether it is advisable to warp wings at all.

One is told by those who ought to know that the amount of motion at any one individual point in the wings of a machine with warping control is so exceedingly small that there can be no danger of any of the working parts coming adrift and causing an accident.

Unfortunately, however, it is known that at least one machine whose wings were notable for the fact that their warp was practically automatic actually broke in the air through the fabric bursting, or through some of the internal portion breaking away and cutting through the fabric. And in any machine which has a very big warp one can always see after a while that the fabric stretches in diagonal rolls from the front inner edge towards the outer trailing edge, which shows that there must be considerable working strain on the fabric and internal working parts, and consequent deterioration. It is practically impossible on any modern aeroplane to make proper working joints to take up even the slight movement of the numerous parts in a warping wing, but it is evident that the actual wear must be quite considerable, and there is always the danger of some of the internal invisible work breaking away and cutting through the fabric.

It is noticeable, for example, that the amount of warp on the "B.E." type biplanes built at the Royal Aircraft Factory is very great, and one is told by those who have flown them that the warp is so automatic that it is necessary to check the warp lever, otherwise it keeps on banging against the pilot's knees, and it is even said that if left alone these machines develop a very considerable and uncomfortable sideways swing owing to the way the wings give to every gust or movement in the air. Such extreme mobility as this must obviously set up very great internal wear, and become dangerous after a comparatively short period of use.

It, therefore, becomes a question as to whether it is not better to build machines with their actual carrying surfaces absolutely rigid, and effect the lateral stabilising by means either of properly balanced ailerons, by hinged and balanced flaps, or, what seems even better, by balanced warping flaps which are attached to the rear edge of the planes, but warp without affecting the structure which carries the main load. This system is used on all the best German machines. Such flaps could be renewed easily and cheaply from time to time, and would very probably be more efficient than hinged flaps or ailerons.

One is apt to forget that, if properly designed, a machine with perfectly rigid surfaces may be absolutely automatically stable. That is to say, it may be blown to any angle in the air, but will always come back if it has room to manœuvre itself. It is, however, necessary even on such machines to have some form of lateral stabiliser, simply because the machine might be struck by a gust when just on the point of landing, and too near the ground for it to recover its equilibrium by itself.

Hitherto the skill of pilots has increased so much more rapidly than the designing of aeroplanes that deliberate design for automatic stability has been very much neglected, except in Germany and Austria, where bad construction has delayed progress to a greater extent than progress in design has been able to compensate. There does not seem to be any particular reason why planes should be made flexible all over, except because the wings of a bird are also flexible. Arguing on the same analogy, it would be equally reasonable to want to build a Dreadnought with a flexible hull because a whiting can hold his own tail in his mouth.

There may be, however, quite a good deal to be said for a type of plane in which the whole weight-carrying structure is absolutely rigid and the whole trailing edge flexible to act much as the springs of a motor car act, and in such a case the flexible trailing edge can be warped without affecting the main spars. However, it appears to the writer that if this arrangement is adopted it should be so designed that in the event of a warp wire breaking it does not in any way effect the automatic stability of the machine, though it may make it a trifle more difficult to land it on an even keel.

As to Propeller Position.

The question of tractor or propeller also seems to be cropping up again. The tractor, of course, has the obvious disadvantage of throwing oil, no matter how carefully one arranges it, and, except in a totally enclosed body, the slip stream worries the pilot and passenger. Also the tractor is in the way of firearms on a military machine, so that taking it all round it looks as if the tractor would have to go, except, possibly, on very small, fast, light single-seaters, where its simplicity of fitting may compensate for its various disadvantages. It, therefore, becomes a question of how to dispose of a propeller in the best way possible.

A propeller stowed between tail booms is plainly a constant danger. It is true that very few of the best class propellers such as are used to-day ever burst, but the writer has seen several propellers smashed through chassis wires giving way and drifting back into the propeller. Fortunately, these cases have happened when the machine was either just getting off the ground or just running along it, and nothing serious happened, though in one case a large portion of the trailing edge of the upper plane and a whole aileron were carried away by pieces of the propeller. In neither case was a tail boom broken, but if such an accident occurred when off the ground, it would scarcely do to depend on such luck holding out.

Yet, strangely enough, in no machine that the

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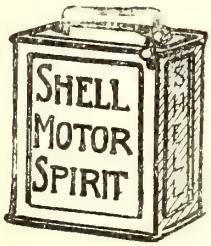
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writer has ever seen has any attempt been made to armour the tail booms against the possibility of such an accident, and in very few machines are the chassis wires next the propeller lashed to supplementary guard wires to prevent them from getting into the propeller if they break. In the Military Wing of the Royal Flying Corps, where the authorities have such a passion for biplanes, and such a wholesome terror of any more fatal accidents, it is somewhat surprising that some precautions are not taken in this direction.

The separate tail boom arrangement, however, need not necessarily be the only method of holding the tail and elevator in a propeller-driven machine. For one thing, as the writer has been pointing out at intervals for something like three years, and as M. de Pischoff demonstrated practically even before that, there is always the possibility of putting the tail booms through the centre of the propeller. More recently the writer has seen a design for a biplane with a round fuselage, something like the abortive Leblon-Humber, in which the fuselage itself formed the bearing for a huge geared-down propeller driven by an engine placed in front of and below the pilot. This appears a wholly excellent system if it works out in practice, and there seems no particular reason why it should not.

Apart from that, however, there is the question of twin propellers, which are certainly favoured by some of those occupying positions of importance in the Royal Flying Corps. These would naturally be placed on either side of a solidly-built fuselage. Certainly geared-down twin propellers have very much to recommend them, but chains are distinctly unpopular, though it must be remembered that the only fatal accident known to be directly traceable to a broken chain was that in which Lieut. Selfridge was killed several years ago. One of our most experienced and safest pilots remarked to the writer the other day that though he could find no theoretical objection to a chain drive he could not help feeling distinctly distrustful when he was flying the only chain-driven machine he had tried. Yet probably no machines in this country have performed more regularly than those chain-driven biplanes belonging to Mr. Sopwith, Mr. Ogilvie, and Mr. Cody.

In most twin-propeller chain-driven machines there is, of course, the objection that if one chain breaks the other one goes on driving, and unless the pilot is very quick in switching off will overturn the machine. Also, the crossing of one chain to get a reverse drive is the most absurdly unmechanical job imaginable. Both these troubles, however, can be got over by using a single chain, as in the Savary, or by using some form of reverse gear and differential near the engine.

It is also said that the weight of chain gearing and the head resistance of the chain cases running across the machine prevents the chain-driven machine from being a business proposition. This argument may hold perfectly good as regards very fast machines, but apparently up to about sixty miles an hour the economy of using a geared-down, and therefore, efficient, propeller more than balances the weigh and head resistance of the chains. Of course, the ideal arrangement would be bevel-gearing with shaft drives, but this apparently is not likely to arrive till somebody invents a new metal as light as aluminium, and as strong as the highest quality steel.

As to Dual Controls.

It is now fairly well known that the system of dual control on two-seater machines which was at first thought essential by the military authorities is now looked upon with distinct disfavour. This is apparently due to the difficulty of arranging a dual control so that the observer can have adequate room for maps, sketching material, and so forth, and many pilots also object to it because in the event of a difference of opinion between two pilots on the same machine there is the danger of their coming to grief while they are arguing the point. Even if they are not actually disagreeing, there is also the danger of the passenger unintentionally grabbing hold of the control at a moment of crisis. None the less it seems that the dual control must be absolutely necessary in time of war, because it would be so obviously wasteful to risk the chance of an expensive machine and a really good observer, not to mention the information they have collected, being lost just because the official pilot of the machine happens to be temporarily knocked out by a wound.

It therefore seems that for actual war service dual controls are as necessary as ever. There seem to be two obvious ways out of the difficulty. One is to have a single control on a side-by-side machine which can in an emergency be reached by the passenger if the pilot is incapacitated. The other is to have two complete sets of control gear, but to arrange them so that one is out of gear altogether when the other is in gear, so that there is no chance of the two interfering with one another. This is more difficult than the question of room for office furniture. Mr. Flanders showed in his design for a military biplane that dual control and sketching material can be got in together with ease. It would probably be rather a nice problem in mechanics to arrange such a control effectively, but it appears to be worth the trouble of designing, and at any rate would be better than the system adopted by a friend of the writer's who carries a heavy spanner in his pocket as an argument with which to convince his companion on a dual control machine that he must obey orders.

As to Self-Starting.

Another point on which considerable store seemed to be set when the rules for the recent Military Competitions were evolved, and one which faded away on the Plain itself, was that the pilot should be able to start his machine without extraneous assistance. So far as one knows, no attempt was made in the course of the competition to see whether any of the pilots could start their machines unassisted, and certainly none of the machines in the Competition could have been started by the pilot alone, except by the present clumsy method of swinging the propeller while the machine was held back by its release gear, and the majority of machines were not even fitted with release gears, which is even more surprising because, even with internal starting for the engine, release gears are necessary if the pilot is to run his engine at full power before starting—a very important procedure when getting out of a small field.

One wonders how much longer it will be before constructors realise the great importance of a self-starting arrangement. The danger to the ordinary cross-country flier of allowing a gang of yokels to hang on to his tail while the engine is being started up by a man who is quite likely to fall into the propeller when it begins revolving seems almost too

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obvious to be worth pointing out, yet such is the recklessness of the average pilot, and such is the lack of foresight of the average constructor that practically no advance has been made in this respect since the first aeroplane flew.

It is probable that self-starting will come by means of the hydro-aeroplane, for already some of the more successful French machines are so fitted that the motor can be started up by the passenger who sits nearest the engine. This certainly must be arranged in all hydro-aeroplanes worth the name, for it is absurd to think that at present the only possible way of starting the engine is for some brave man to go and stand on the starboard float of a tractor biplane between the propeller and the leading edge of the plane and balance himself on it while he swings the propeller in spite of the machine dancing about on the water.

It is true that propeller swingers are fairly cheap, but propellers are dear, and the propeller nearly always gets broken if the swinger falls into it. Also, in the future it seems highly probable that the only passenger on naval hydro-aeroplanes will be an officer-observer, and if a machine had to come down on the water merely because of a defective plug, or some such trifling defect which could be put right, it would hardly be worth while risking losing him through his being thrown into the propeller by a pitch of the machine just as the engine was starting.

Steering on Water.

A propos of hydro-aeroplanes, it is absolutely essential that there should be some method of steering the machine in the water, because it may be possible to run the engine quite slowly and so keep way on the machine, although the engine is not giving enough power to steer by an air rudder in the usual way. Of course, as was pointed out last week, hydro-aeroplanes of the large kind ought always to have two engines, so that in the event of one petering out there is always a certain amount of power available with which to get home on the surface of the water.

Sea-going Water-machines.

Further on the subject of hydro-aeroplanes, there seems to be a growing opinion that the flying boat, as distinguished from the aeroplane with floats, can never be of very much use in a heavy sea, except when built very large. The trouble at present is that in smaller sizes, owing to the wings being close to the surface of the water the slightest roll dips a wing-tip under and the machine swerves round. It appears as if it is necessary for the wing-tips to be at least ten feet out of the water if the machine is to be useful in anything like a bad sea, and before the flying boat attains such dimensions as that it becomes practically a flying liner.

No doubt this type of machine will come in due course, but it is some distance ahead, and in the meantime the small-sized flying boat is quite a useful proposition for lakes, rivers, and protected harbours, and the ordinary type of machine with a deep chassis and hydroplane or catamaran floats can probably be used in fairly rough water.

Sea-water and Metal.

Also in connection with hydro-aeroplanes, it is obviously necessary that none of the metal parts should be affected in any way by sea water, so that in the first place aluminium should not be used anywhere on the machine, for the mere action of sea air is sufficient to cause it to disintegrate, and in the second place all steel and iron should be either galvanished or cosletitised. The latter process is comparatively new, but the writer can vouch for its effectiveness. It merely consists in phosphorising the surface of the metal to prevent it from oxidising. The process apparently does not affect the strength of wire or sheet metal in the least, and it does not alter its dimensions so far as is perceptible with a micrometer.

Twisting of Frames.

Yet another point in all machines is the twisting of tail booms and fuselages either by the action of tail skids or by the fact that the wings are stabilised by their lateral control surfaces, and wrench the tail or longitudinal control surfaces into the same plane afterwards.

Despite the affection of the designers at the Royal Aircraft Factory for the system of steering a machine on the ground by means of a swivelling tail-skid it is by no means certain that such a point of design is advisable or even permissible, for it must obviously set up wrenching strains which involve the use of a fuselage much heavier than it need be if its extreme end had not to be bumped about on the ground, and even when a heavy fuselage is used it is quite likely that such serious damage may be done in getting off rough ground that the fuselage may break in the air. Such an accident actually occurred to a monoplane at Eastchurch, fortunately without



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damaging the pilot. It is well to note that the machine was not built at Eastchurch.

Therefore it seems worth while considering whether the Cody, Bréguet, and Hanriot system of making a machine without a tail-skid and balancing it on its chasis is not better and safer in the end. After all, an aeroplane does resemble a bird rather than a kangaroo.

To a less extent it seems that we might improve machines by using lateral controls on the tail as well as on the wings. The writer's attention was first drawn to this point when watching Mr. Hamel doing tricks on the old Gordon-Bennett Blériot, which was then badly in need of an overhaul. It was quite noticeable that when he did a sharply banked turn, the wings banked over to an angle appreciably different from that of the tail, which took some time to get level with them. The wrenching action on the fuselage under such circumstances must be considerable, and the bigger the longitudinal control planes the bigger the wrench.

So far as one knows, the only machine in this country in which provision is made against such strains are the Cody and the Caudron. Mr. Cody works his two big, loaded elevators independently of one another and in conjunction with his wings warp. M. Caudron warps the flexible edge of his tail planes in conjunction with the flexible edge of his wings. Both machines are notably quick on their lateral controls, as in neither case do the elevator planes act as dampers on the lateral stabilisers.

In discussing this question recently, someone pointed out that the Cody machine was practically a development of the early Wright type with the leading elevator, whereupon an incautious bystander hazarded the opinion that if his machine was the Cody-wright the other was the Cody-wrong. When he recovers from the effect of the subsequent proceedings he will doubtless learn that it is as evil a thing to jest about the Cody machine as it is to speak disrespectfully of the equator.

With this the writer leaves these disjointed notes for the consideration of those gentlemen who are sure they know all about aeroplanes, and hopes that if they succeed in getting through to the bitter end they may feel a little less certain that we are anywhere near the time for fixed designs.

Also, if the points are of interest he will be glad to hear from those who can suggest other debatable points, or who are willing to contribute to the general store of knowledge from their own experiences.

Stability in Flying.

BY F. HANDLEY PAGE.

In the words of the text-book, there are three kinds of stability—longitudinal, lateral, and directional—and it is, or should be, the endeavour of every aeroplane designer to obtain all these to a high degree and yet not impair the general efficiency of the machine by so doing. The problem is somewhat difficult, for all three kinds of stability are interdependent on one another. Thus an accident due to a wind gust upsetting the machine may start with the machine tilting on one side owing to defective lateral stability, then continue with a slewing round of the machine due to poor directional stability, and end with a nose dive.

The most difficult part is lateral and directional. Fore and aft stability is fairly easy to obtain. I will deal with all three kinds separately and with special reference to the means adopted to our own machine to obtain inherent stability.

Longitudinal stability is obtained by ensuring that the centre of pressure of the machine always moves forward with a decreasing angle of incidence, and backward with an increasing one, the pressure and weight always providing a righting couple. Flexible extremities of the wings assist by damping the oscillations quickly.

In an aeroplane consisting of a fixed main plane of single curvature, the centre of pressure unfortunately always moves backwards with a decreasing angle of incidence after an angle of about 15 degrees is passed. Previous to this point the centre of pressure travels forward with a decreasing angle, the change in the results being due to the air on the top of the plane starting to follow the plane surface, instead of breaking from it and merely exerting a drag on the dead air region of the plane back. The air, by following the plane contour, exerts a more even pressure over the whole of the curve, and as the angle decreases exerts its effect more and more rearward, so that the resultant centre of pressure moves backward with a decreasing angle of incidence. The consequence is that with a single plane of this shape stability cannot be obtained unless the tail plane is used to give the necessary righting moment.

If the plane has a reverse curve at the rear edge, the rear portion acts as the tail plane of the first type of machine, and a continuous movement forward of the central pressure is obtained with a decreasing angle of incidence. The trouble is, however, that unless this upward curvature at the rear is very carefully designed, the efficiency of the plane as regards lift and resistance is greatly impaired, and the stability is obtained at the expense of efficiency. Some of Eiffel's tests at Paris, and Professor Prandtl at Gottingen, clearly shows this. On the other hand, when the planes are of correct curvature, that is, the reverse curve fits in with the path of the air stream, very good efficiency is obtained, as Mr. Turnbull's experiments over in Canada show, the "lift to drift" ratio being higher with a reverse curve plane than with any other type.

In our own machine the curvature of the main plane is so designed that from nought to ten degrees there is very little movement of the centre of pressure on the ordinary cambered part of the plane, and the reverse curve at the rear edge easily provides the necessary righting moment.

The tail, however, is provided so as to increase the damping moment, although this type of machine would be absolutely stable without any empennage whatsoever.

Lateral stability is obtained by grading the pressure from a maximum at the plane sections near the body, to a zero value at the tips, and by sweeping back the plan form of the wings. Both the camber of the plane and the angle of incidence decrease from root to tip to give this pressure grading. The result is that the air at the tip not only flows backward, but also has an outward component, and the reverse curve is designed to fit in with this oblique form of flow.

A side wind gust striking the machine tends to nullify the outward component of the flow, and reduce the air velocity of this wing tip to the normal flow parallel to the body. The tendency is, therefore, to make the machine tip over on the side opposite to that first struck by the wind, but this is counter-acted by the body and the more central parts of the plane, with the result that the machine rolls a bit in rough weather, but is always self-righting.

After a pilot has become accustomed to a machine and to this slight rolling in rough weather, it can be flown with the warp locked. The machine is self banking on turns, and needs only the rudder control for turning. The warp control must always be fitted to a machine for, however perfect a machine may be, there is always the danger when alighting that the machine may not be on an even keel and the warp must be used to bring it right instantly.

The wing shape gives a very good directional effect. The air flow produced by the tips has a steadying effect on the machine, and although the aeroplane may roll a little in rough weather, it is not blown out of its course.

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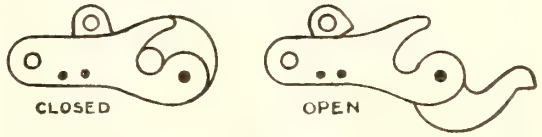
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Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," War Office, October 15th:—Special Reserve of Officers, Royal Flying Corps, Military Wing: Geoffrey de Havilland to be Second Lieutenant (on probation), October 16th.

It is reported in the French Press that Engineer-Lieutenant G. W. E. Aldwell, R.N., of the British Admiralty, flew as passenger with Lieutenant de Conneau on a Donnet-Lévêque biplane at Bezans on October 12th. Commander Masterman, R.N., and Lieutenant Aldwell, R.N., also flew as passengers with Labouret on an Astra biplane (110-h.p. Renault engine) at Meulon on the same day.

Lieutenant C. L. Courtney, late of the battleship "Commonwealth," Paymaster E. R. Berne, late of the battleship "Neptune" (Secretary to Commodore W. O. Boothby, Captain of the Fleet to the Commander-in-Chief of the Home Fleet), and Acting-Boatswain H. C. Bobbett, R.N., late of the battle cruiser "Indomitable," who were appointed to the "Actæon," torpedo school ship at Sheerness, on August 19th, for a course of aviation at the Naval Flying School, Eastchurch, have obtained their pilot certificates, having qualified on Short biplanes. Paymaster Berne is the second officer of the Accountant Branch of the Royal Navy to qualify as an air pilot, the first being Assistant Paymaster G. S. Trewin, who went through an observer's course at Eastchurch, and obtained his pilot certificate at the Central Flying School, Upavon. Electrician A. Deakin, R.N., of the Eastchurch Flying School, has also obtained an aviator's certificate, having qualified on a Short biplane.

It is understood that the report of the Judges Committee on the Military Aeroplane Competition is to be published shortly as a Blue Book. The writer gathers that this report is likely to be a severe shock to many people in the aeroplane industry, especially to those who have formed their opinions of military requirements from recent actions by the War Office, which are explainable in ways quite other than those popularly accepted. Also, it is probable that those who have taken the trouble to read The Aeroplane carefully will find that the opinions expressed therein many months ago as to the merits of certain types of machines are strongly borne out by the report. It may also be that, as a result, the Royal Aircraft Factory will later on be found in close agreement with The Aeroplane so far as a new type of machine is concerned, though possibly the method of supplying that type to the Royal Flying Corps may call for as much criticism as ever.

FRANCE.

The following officers have been appointed to the grade of Chevalier of the Legion of Honour for services in aviation, to date October 11th, 1912:—

M. Mailhos (of the Engineers), Captains Schneegans (Col. Infantry), J. A. M. V. P. Faure (Artillery), Leclerc, De Rippert d'Alauzier (Staff), Pichot-Duclos (16th Inf.), and Lieutenants Bousquet (Colonial Infantry) and Vaudein.

For their services in the manœuvres, Sergeant-aviator Moineau and Private Bathiat have received the military medal.

Captain Badet, commanding the aeronautical depôt at Chalons, took delivery at Bourg, on October 14th, of seven Henry Farman biplanes (five two-seated, with 50-h.p. Gnome engines, and two three-seated, with 70-h.p. Gnome engines).

A Bréguet hydro-biplane has just been accepted by the naval authorities at Fréjus.

Four Hanriot monoplanes were taken over by the Army on October 18th.—W.

GERMANY.

The municipality of Cologne has approached the Ministry of War with a view to the installation of a military aerodrome in the vicinity of that city.

The dirigible Z 11, which was seriously injured on August 31st at Cologne, will not be ready for service for some months to come. So rumour says—and rumour is not always baseless. An investigation of Germany's dirigibles would be both interesting and instructive. Yet, apart from the number of wrecks, the Army Dirigible Corps manages to get, on an average, twenty-four days a month in the air out of their dirigibles.

Another dirigible has been ordered from the Zeppelin firm for delivery before next spring.

It is estimated that about three hundred officers are learning to fly in different parts of the Empire. On October 14th two officers took their certificates at Johannisthal, and six N.C.O.'s at Leipzig. This, apart from the majority of officers who reach a set stage of proficiency, while refraining, for reasons of public policy, from taking the ordinary pilot's certificate.

Two further military aviation stations are to be formed at Posen and Königsberg. Additional officers and machines are to be attached to the arerodromes at Strasburg, Metz, and Darmstadt.

The Zeppelin dirigible balloon L 1 has been accepted by the Ministry of Marine.—W.

The German hydroplane meeting at the Putzig naval station has been postponed until the end of the month. It was originally intended to start on the 19th inst. The "Albatros," "Ago," and "Aviatik" biplanes arrived at Putzig last week, where they are seen at work daily.

Up to the time of writing, the aviators in the South German Circuit had reached Nuremberg. Several minor accidents have taken place, due principally to the fogs, which have hampered the pilots from the start. Herr Hirth, with Lieutenant Gravenstein, of the Dragoons, as passenger, arrived first at Nuremberg, after covering the distance from Frankfort, close on 200 kilometres, in an hour and a half. He stated it to be the worst flight in all his experience, as the storms were so strong as to drag him from his seat. Lieutenant Joly, with Lieutenant Niemoeller, was the second to arrive—also on a Rumpler, their propeller being much the worse for the battering received from the hail. Lieutenant Vierling, of the Bavarian Army, almost landed in the River Maine, as his machine was so buffeted whilst attempting to land that he only stopped two yards from the brink.

RUSSIA.

The military aeroplane competition is drawing to a close, and public interest in it is almost dead. The Sikorsky biplane carried a weight of 380 kilos at a speed of 120 kilometres, and so created a record, it is claimed.

Captain Gorschkov has recently made experiments with his patent parachute. He dropped it, with 100 lbs. in weight attached to it, from a Farman biplane when at a height of 1,000 ft. After dropping fifty or sixty feet it opened and descended slowly to the ground.—W.

BELGIUM

Following the example set in the French Army, a review has been held at Brasschaet of the Military Aviation Corps. General Van den Borren was the inspecting officer, and Lieutenant Nélis was in command of the aviators present. Fifteen officers were presented to the General. Flights were made on Gnome Farmans by Lieutenant-aviators Nélis, Lebon, Dhanis, Browne, Moulin, and Deschamps. Towards the end of the review Lieutenant-aviators Soumoy, Stellingwerf, and Verschaeve flew over from Saint Job, also on Gnome Farman biplanes.—W.

TURKEY.

According to "Excelsior," the Ministry of War has engaged four French aviators to fly for the Turkish forces. They are in possession of their brevet militaire, and they are to receive as pay £200 per month, with a minimum engagement of three months. Each aviator is to have a mechanic, who will receive £40 a month.—W.

Adolf Rentzel, the German Harlan pilot, who acted as military instructor at Constantinople during the summer, has offered his services to the Turkish Government, and an acceptance having promptly arrived, will leave for Turkey in a very few days.

BULGARIA.

Five Russian and ten Italian aviators are understood to have offered their services to Bulgaria. They will fly Nieuport, Deperdussin, and Blériot monoplanes and Farman biplanes.

Lieutenant Kalinoff, of the Bulgarian Army, took his pilot's certificate at Mourmelon on a Voisin biplane on October 15th.

Lieut. Michele Mitteff, of the Bulgarian Cavalry, and Lieut. Stoganoff, of the Bulgarian Infantry, have undergone a course of tuition at the Sommer School at Mourmelon, and have left for the front this week, taking with them a specially-built and armoured Sommer biplane. Judging from a very small photograph kindly sent by one of the pupils at the Sommer School at Mourmelon, this machine is in general outline like a Henry Farman, with a body well out in front of the planes.

Bruno Buechner, the erstwhile cycling champion and present-day aviator, has left Leipzig, accompanied by Rupp, for Sofia,

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in order to deliver three "Albatros" double-deckers to the Bulgarian Army. It is quite probable that Buechner and Rupp will remain on and act as scouts for the confederate armies.

SERVIA.

The Russian aviator Abramovitch, who flies a German Wright biplane so successfully, has accepted service as an aviator in the Servian Army.—W.

The first of the Henry Farman machines ordered by the Servian Government was handed over on October 16th at Buc to a committee of Servian officers, composed of Lieuts. Tolgovitch, Novitchich, and Petrovitch.

GREECE.

As soon as hostilities broke out between Greece and Turkey a Greek officer, on a Farman biplane, was dispatched to inspect the country over the border. As he was unable to discover any Turkish troops in a radius of more than 50 kilometres, the Greek forces immediately crossed the frontier.

ROUMANIA.

The National Committee of Aviation in Roumania, of which Prince Bibesco is president, recently ordered two Maurice Farman, "type militaire," biplanes from the Farman firm. These have just been tested at Bucharest by the Marquis de Lareinty-Tholozan, and although the surrounding country is by no means suitable for tuition, this clever pilot succeeded with these two biplanes, in less than a fortnight, in carrying thirty passengers for a distance of more than 1,000 kilometres, and trained two pupils. During the greater part of his visit to Roumania the Marquis de Lareinty-Tholozan was attached to the Roumanian Army during grand manœuvres, and officer-observers carried by him did valuable work.

ARGENTINA.

The first German aeroplane, a Rumpler Taube, with a 50-h.p. Argus motor, has now been sent to the Argentine, where it will be delivered to the Government

JAPAN.

Japan has ordered from two German constructors sixteen aeroplanes and three dirigible balloons.—W.

A new Maurice Farman hydro-aeroplane ordered by the Japanese Government was delivered on October 14th at Buc. The machine was piloted by M. Fourny, with the Japanese Capt. Unekita as passenger. On the same day Capt. Unekita passed for his pilot's certificate on a Farman.

MR. CODY'S MICHELIN SUCCESSES.

Congratulations to Mr. Cody on actually winning his fifth Michelin prize. The official announcement that he had done so was made by the Royal Aero Club last week. It is worthy of note that except for the engine the whole of the Cody machine has been built by Mr. Cody and his family. Mr. Cody is, of course, designer, chief engineer, head constructor, and pilot. His eldest son, Mr. Leon Cody, is chief mechanic and tuner up, and Mr. Frank Cody his youngest is general assistant all round. One paid assistant is engaged from time to time as the work may require. The covering of the planes is done by Mr. Cody's cousin, Mrs. Whittall.

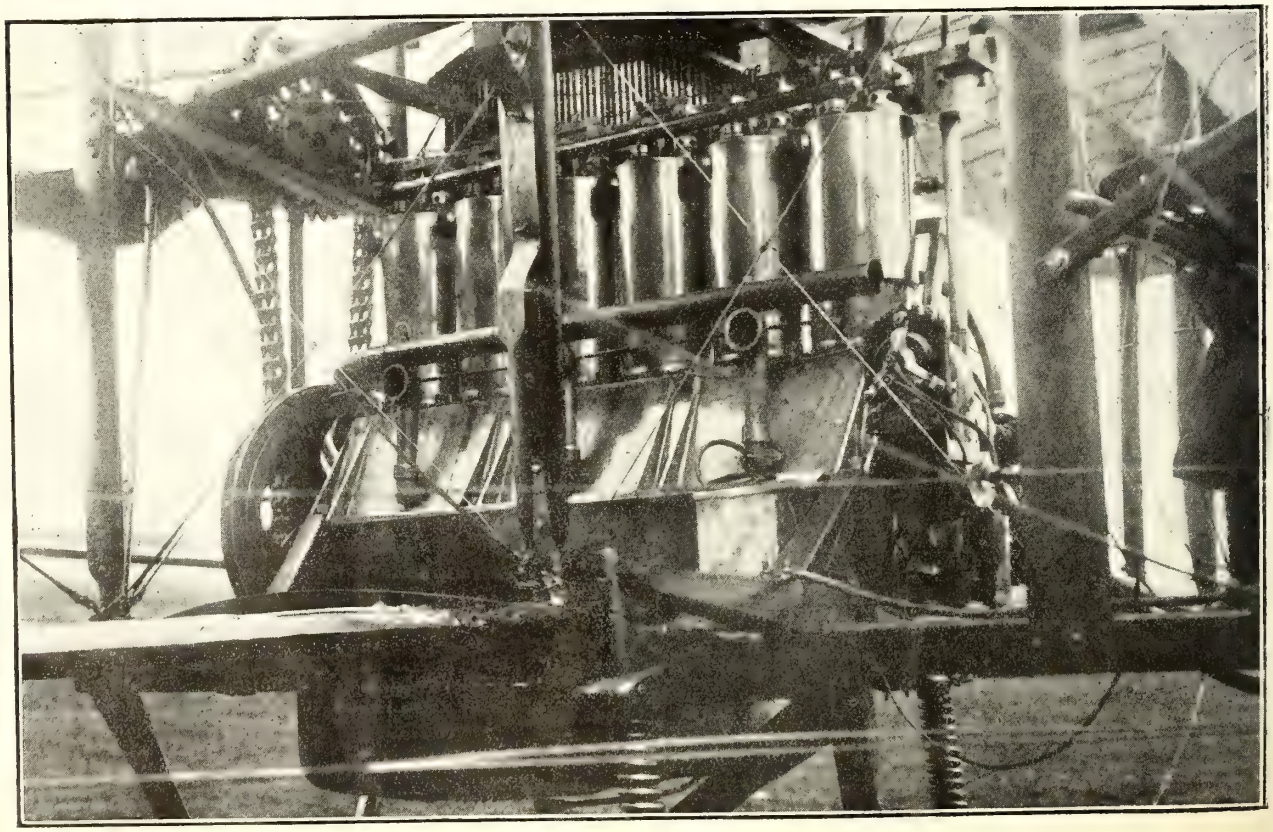
In preparing the new 100-h.p. 6-cylinder Green engine for the Michelin contests valuable assistance has been given by Mr. Fred May, Managing Director of the Green Co., and Mr. Green, the patentee of the engine.

There is a proposition that Mr. Cody shall fly to India. If the proposition had been put up by anybody else one would feel rather inclined to treat it as a wild cat scheme, but Mr. Cody says that if the necessary money is forthcoming he can do the flight, and some years' close knowledge of Mr. Cody and his work has convinced the writer that if Mr. Cody says he can do a thing, it will be done. At the same time one rather hopes that instead of money being found to induce Mr. Cody to fly to India, considerably more money will be put up which will enable him to embark on the aeroplane industry in a large way of business and remain in this country, for knowing some of Mr. Cody's ideas as to future design the writer is strongly of the opinion that when he brings out a new type of machine it will be a very considerable advance on current practice.

Mr. Cody's lecture on November 8 at Caxton Hall promises to be a huge success. In fact so great is the demand for tickets already that the organisers, The Kite and Model Aeroplane Association, are likely to feel sorry they did not take a bigger hall.

Lieut. Conneau in England.

It is reported that the Donnet-Lévêque biplane ordered by the Admiralty has arrived in the Isle of Sheppey, and that Lieut. Conneau himself is to put it through its tests before it is accepted by the Navy.



The 6-cylinder 100-h.p. Green Engine with which Mr. Cody won the Cross-Country Michelin Prize.

Infantry and the Aeroplane.

BY W. E. de B. WHITTAKER.

Infantry forms the main body of all armies. On the efficiency of the infantry depends to a large degree the success of all warlike operations. Unlike cavalry or artillery it can operate over any type of country. The more crowded a country may be with woods, rivers and villages the more favourable it is for infantry action so far as the attack is concerned. The foot soldier is more independent of conditions than any other branch of the service. He is more easily and more cheaply trained than the cavalry man or the artillery man and his efficiency increases greatly with his length of service. The great generals of history have invariably taken every precaution to maintain the condition of the unmounted arm. The Seven Years' War, the Peninsular War, the War in the Crimea and that between France and Germany were all decided not by the dash of the cavalry or the meticulous science of the gunners, but by the solidity and persistence of the infantry.

The first principle of employment of infantry in the attack is that the threatened position shall be adequately reconnoitred. Not only does lack of knowledge of the enemy's dispositions lead in many cases to unqualified disaster, but with few exceptions it fatigues unnecessarily the attacking troops, and is inclined to destroy morale To maintain a heavy rifle fire at a position through many hours and then to find finally that the enemy's strength lies in other directions is futile and depressing. Infantry fire depends for its success entirely on accurate knowledge of the range and strength of the enemy's position. Again, lack of information causes an infinity of useless movements tending without real gain to complete weariness on the part of the men and consequently to inefficiency of action. Colenso is a perfect example of the misguided infantry action. The G.O.C. had no accurate information as to the disposition of the Boers. He was not even aware on which bank of the Tugela they were massed. He depended as a general must on his scouts and they failed him. The world knows the result. With the intention of forcing the enemy to reveal its position he made a frontal attack—or what he took to be a frontal attack. Because he was unaware of the vulnerable points of the Boer dispositions he was unable to decide accurately where to mass his supports. The river was crossed by Hart's Brigade which had to retire later owing to lack of support. Relying chiefly on surmise, he ordered a number of guns into an untenable place. In the end our troops had to retire having done no real damage and having acquired no information save that the enemy were in front. The fatigue of marching and counter marching placed his infantry out of action for some days. All this wasted effort could be eliminated now-a-days by the use of aeroplanes. They can at least indicate the point at which the body of the enemy is massed. With this knowledge at hand a second Colenso would be a crime rather than a regrettable mistake. So far in such a battle can infantry be helped by aeroplanes. An action which took place at a later date, and which cost us much in blood and prestige, is an example of the opposite. At Spion Kop the British infantry held a position for many hours which was lower than those held by the Boers in the immediate vicinity and was consequently swept by their fire. By sheer pluck and endurance the hill was held until the Boers were, unknown to our troops, preparing to retire. In the event the British retired first owing chiefly to the indecision almost amounting to insubordination of an officer of high rank. Here aeroplanes so far as reconnaissance was concerned would have been of little use. The respective heights of hills are less apparent from above than they are from the ground. An aerial observer would be quite unable to indicate a commanding position for the troops. He could only state the formation of the enemy. Thus, one has in two instances of actions taking place within a short space of each other a demonstration of the virtues and failings of the aeroplanes. History emphasises in every line the necessity of combination between all arms of the service.

The modern war, owing to increased mobility and the use of weapons of higher precision, now takes place over vast spaces. Over these spaces infantry must operate in the time-honoured manner—on their feet. The amount of marching carried out by the unmounted arm has almost doubled in the course of a century. Questions of commissariat and ordinary fatigue are of greatly increased importance. It is the object of every commander of talent to arrive at the desired objective by the shortest route possible. Marching and counter marching unless of absolute necessity has no attraction for him. He desires his men to be fresh and in good condition on the day of battle. The information obtained by land scouts has in the past been his sole means of judging the necessary movements to be made. And the results of their investigations are by no means always accurate. Circumstances and the wrong inference from data obtained may cause a movement of a couple of hundreds when a march of fifty would have attained the object in view. Consequently the move is made as it is not easy to obtain corroboration of statements of a corps of scouts. Too late it is found that the entire manœuvre is useless and another long march is necessary with the probability of fighting fresh troops at the end. Disaster is often the result. Weary troops are invariably dispirited troops, and dispirited troops are often defeated troops.

The aeroplane can alter most of this indecision. The flying scout can reconnoitre a position 150 miles away from his base with the greatest ease. If he is attacked by opposition aeroplanes he has at least learnt that there is something the enemy desires to hide. It cannot be very difficult to discover the places totally unoccupied by the enemy, and if the aerial observer has even a fragmentary knowledge of the art of war, he can by reading such dispositions as are visible to him gather the general formation of the enemy. The results of aerial reconnaissance, after being checked by the Staff, would at once be transmitted to the corps affected. Enough would be known to save the troops unnecessary fatigue.

The coming of the aeroplane also affects formations to some extent. The easiest method of moving infantry from point to point is in quarter column. In extended order it is difficult to maintain necessary cohesion in the carrying out of a movement. Yet when on verge of action only the least intelligent of generals would carry out a manœuvre almost under the enemy's guns with his infantry in dense masses. Yet there are many occasions where, if he knew the strength and position of the enemy, it would be perfectly safe to carry out certain movements in whatever formation he desired. This knowledge he can acquire from the flying scout.

Those who have watched bomb dropping competitions in the comparative calm of suburban aerodromes are not greatly impressed at the possibilities attending the dropping of high explosives from an aeroplane in time of war. Successful shots would be rare and the effort wasted would not be justified. But some use might be made of bombs in the breaking up of infantry holding a position. There is none so liable to "nerves" as the foot soldier waiting hour ofter hour throughout a day in the same position hardly knowing how the fortunes of war are tending. His equanimity would be greatly disturbed if a few bombs—even if actually harmless—were dropped from above while he is being attacked in front as well.

Experiences on three Farman Biplanes.

Each type of motor-car on the road has its particular points and its differences from others. One car may accelerate rapidly and smoothly; another is well known for its perfect springing; some cars can be driven more easily than others; and so on. It is a simple matter to describe on paper the essential features of various motor-cars, and each motoring journal is filled week by week with such detailed descriptions. In the case of aeroplanes the circumstances are different. The trustfulness of the constructors does not extend to permitting anyone to try in succession each of their machines, nor is the capability of those who write sufficient for the safety of the aeroplanes or of themselves. At this time in the history of the industry it is an impossibility to judge of the ease of control and airworthiness of any machine by other means than that of simple observation. And here, again, there are difficulties. No two pilots fly in exactly the same manner—each has his own peculiarities. The brilliancy of a Hubert Latham is an infinity away from the calm caution of Henry Farman. In personal courage there is little difference, but two such types are at opposite poles in temperament. Some pilots allow a machine to move laterally almost as it wishes, only correcting a bank when near a dangerous angle. Others, on the contrary, fly with the aeroplane in constant rigid equilibrium. The difficulty, therefore, of judging between the airworthiness of any two flying machines is obvious. The personal factor is predominant.

Within the last fortnight I have made flights as a passenger on three types of the Farman biplane—a 70-h.p. Gnome-engined Henry Farman, an 80-h.p. Gnome-engined Henry Farman, and a 70-h.p. Renault-engined Maurice Farman. Each of these biplanes was built in the same works in Paris.

On Friday, Oct. 11th, I went as passenger with Mr. Claude Grahame-White on a 70-h.p. Gnome-engined Farman biplane. The weather was perfect so far as flying was concerned, such breeze as there was being quite steady and of no strength. We left the aerodrome at a height of 600 ft., and in the direction of Willesden. Rising steadily with no apparent effort, we passed over the Welsh Harp. From there we crossed the outskirts of Hampstead at an altitude of 2,100 ft. Turning to the left we flew over the Heath and Golder's Green, and then back to the aerodrome. Owing to a pupil making the necessary tests for his brevet we were unable to land for ten minutes.

In making a flight of this kind it is surprising to note the large expanse of open country even within town areas. At no point of the circuit would it have been difficult to land without damage, even had our altitude been 500 ft. instead of 2,000 ft. Level, unbroken fields appeared in every direction, and the only unpleasant expanse crossed by us was a "notorious open space," Hampstead Heath. Judging from above, a forced landing on such ground could only have one result—unqualified disaster to machine and pilot. Low trees, small hills, and jagged valleys predominate. Whatever may be its appearance on terra firma in the October sun, there are few things more unpleasant to view from above. One's aesthetic principles vary according to the altitude attained and the object in view.

I was puzzled as to the object in life of an orderly series of white objects erected in trim rows in a large green field. None of the ordinary explanations fitted, and it took some little time to realise that they were simply gravesones, either used or unused. No chapel was near to supply a ready key. It may have been an undertaker's display or it may have been an overflow repository attached to some adjacent cemetery. It will continue to be an unexplained mystery.

On Sunday, October 13th, I made a short flight of twenty minutes with Mr. Noel as pilot on the 80-h.p. Farman. The day was calm, with no apparent wind but a stray drift to the north-east. We rose rapidly, reaching twelve hundred feet in a single circuit of the aerodrome, which we then left. Flying along Colindale Avenue, we bore to the left and crossed the Welsh Harp at nearly two thousand feet. We turned shortly afterwards and flew back to the aerodrome, where we landed after a spiral vol plané over the railway embankment. This biplane is, apparently, not as inherently stable as the 70-h.p. Farman appears to be. The vibration of the engine is much greater, and the machine answers to every gust. Any movement of the controls is immediately responded to, the slightest flexion of the ailerons altering her lateral position at once. The machine does not appear to bank with the readiness of the other Farman types, nor is it so easy to land. Also, owing to the larger engine, the vibration is high in turning and when coming down with the motor running. The comfort of the passenger is greater than in the other types, as, owing to a higher cowl, he does not sit in a draught. The wind is deflected from the seats. Mr. Noel's piloting is of the highest type, careful and well-judged. One has perfect confidence in his ability, and as his passenger any form of "nerves" is absent.

The Tuesday following I was to fly with M. Verrier on a Maurice Farman biplane from Hendon to Farnborough. At six o'clock, when I started for Hendon, the morning was moderately clear, with a slight ground-mist. As Fate usually wills when plans have been made in advance, we could not start as the mist became a London fog, and the London fog thickened until, at lunch-time, the first pylon could not be seen from the enclosure. To start in such a cloud is to court disaster, and there are pleasanter ways of seeking oblivion than by colliding with a church steeple or a four-roomed cottage. Shortly after lunch we were told that the air was clear outside the aerodrome, and that as soon as we were over Harrow we should have the country open below us like a map. Also, the mist had lifted a little. We started at 1.45 p.m. exactly. Such wind as there was—about five miles an hour—was in our favour. Making a half-circuit of the aerodrome, we left it at a height of six hundred feet. Over Kingsbury we were flying at twelve hundred feet, at which altitude we remained until nearly at the end of the flight. As we had been told, the country was comparatively clear as soon as we had crossed the Edgware Road. One could not see farther than about eight miles, and as the sun was clouded by the mist all below was sombre in colour. Over the outskirts of Ealing we bumped a little and dropped perhaps fifty feet in all. But such aerial disturbances as there were supplied a relief to an otherwise monotonously regular journey. Except for the intense cold, nothing could have been more comfortable.

From Ealing we could see the Staines reservoirs shining like silver against the dark background. We flew without deviation directly over the water, expecting a remou, but remaining absolutely steady. The surface of the pond was disturbed by the curious little currents of the type that can so readily be seen in the Mediterranean on a hot sunny day—the accepted indication of a disturbed atmosphere. As we passed over Egham we could dimly see the Brooklands track some five miles away to the south and on our left. To the north was Windsor well within sight, but as I was at the time deeply impressed by the turgidity and general inefficiency of the recording barograph I had hanging in front of me, the King's castle passed unnoticed. I did not even see Virginia Water, close though we were to its boundaries. A little farther and we were over Bagshot Heath, burnt and black as Tierra del Fuego. The ghosts of such highwaymen and footpads as haunt the scenes of their long-gone rogueries and the place where their dry bones rattled in the chains of the gallows would find little encouragement to return. No corpulent bishops carrying in well-filled bags a year's dower of their sees roll in creaking state across the unprotected waste. The motor-car and the police trap have made the highwayman's paradise an abomination of desolation, and the "gentleman of the road," could he, perchance, reincarnate, would be driven to emulate the deeds of the brutal burglar that he might earn an honest living. The times are bad, and it is a far cry to the days "When Walpole spoke of a man and his price, And nobody's honour was over-nice."

The Heath was uninviting as a prospective landing place, and one prayed that the motor would continue to do its work unfailingly. All from above looks flat and smooth, but until a descent is made none can tell what hidden snare awaits the luckless aviator. But the Renault neither faltered nor stopped, so one was denied the experiment.

The nature of the country, so far as obstructions are concerned, gradually gets worse as one nears Farnborough. No better place could have been chosen as a nursery of experience for the military aviator. If he escapes disaster in a forced landing he is clearly reserved for higher things.

As we approached Farnborough we rose slowly to an altitude of 2,000 ft., and at that height we passed over Aldershot and on to Cove Common. We arrived at our destination in thirty-five minutes from Hendon, and we had still another twenty-five minutes before we could land. With the engine cut down we descended to within one hundred feet of the ground.

For the next half-hour Verrier flew as those at Hendon have seen him fly on occasion. The big biplane was a toy in his

hands. We switchbacked several times in succession until one felt sick with the unaccustomed movement. We circled the dirigible-sheds a few feet from the roof. We wheeled and turned in figures of eight too small to satisfy an observer for the pilot's certificate. On occasion we dived in a spiral to within a few feet of the ground, scattering those who stood below, and then, when apparently too late, we shot upwards at an appalling angle. At 2.50 p.m.' we landed, having completed the necessary hour's flight. At Farnborough the afternoon was clear and brilliant and the air was warmer.

Almost immediately after our arrival Verrier put the machine through necessary tests for rate of climb, fast and slow speed, and rolling over bad ground. Each test was passed with ease. The ground over which the rolling test takes place is certainly infinitely better than the majority of that on which military aeroplanes will perforce have to land on service. Mr. Grey's argument a week or two back that certain machines passed this test easily because, when moving at twenty miles an hour, they were already lifting slightly, seems to me to be distinctly in favour of the trial. Surely the ideal machine is one which will rise and land at very low speeds whilst capable of flying at a swift rate. The tests should be, and apparently are, imposed in consideration of the results desired. Such officials of the Factory as I met during the afternoon were both prompt and courteous. The trials were carried through with a commendable absence of formality, though all conditions were rigidly observed. I cannot say more.

The Maurice Farman biplane answers its controls more rapidly than any machine of which I have experience. The merest touch is responded to with as great precision as the movement of the steering-wheel of a motor-car. The biplane rises to each gust after the manner of the most seaworthy boat. There are no sudden jolts and jars as on some aeroplanes I could mention.—W. E. de B. W.

The Avro in Portugal.

From Lisbon comes a most interesting and amusing letter from Mr. W. H. Sayers. The following extracts should prove informative :—" Perry and I left London on the Sunday night, and had an excellent journey to Paris. We were joined at Paris on Tuesday morning by H. V. Roe, and departed at 9.26 a.m. for San Sebastian, where we arrived at 11.30 p.m., to discover that our baggage, though registered to San Sebastian, had to be put through the douane at Irun. Early in the morning Perry went back to Irun and got our luggage, having to pay a monstrous excess as there were three peoples' luggage and only one ticket.

" After much tribulation we got on board a Madrid express about 9 a.m. We soon got into trouble here. It appeared that was a ' stunt ' train and we had not properly booked seats in it, and that our baggage was not properly registered on it and various other irregularities were being committed. The trouble was augmented by the fact that none of the train attendants knew any French or any civilized language at all, and our only assistance came from a Spaniard with some microscopic knowledge of English and a Portuguese with some French. The finish was that it cost us something like 40 or 50 pesetas. for various items, and the loss of 10 gallons of castor oil which was incontinently hurled from the train at Burgos.

" We arrived at Medina del Campo about 5 p.m., somewhat late and discovered that the connection to Salamanca was not a corridor and had no restaurant car. Having had dejeuner about 11 a.m., we were somewhat hungry when we got to Salamanca at 11.30 p.m., and were quite glad to eat a strongly garlic-flavoured dinner at the station restaurant. The train on from Salamanca had not waited for us, so we slept in the compartment till 5 a.m., and then proceeded, after coffee and rolls, in the same style to Villarformosa, on the Portuguese frontier, about 1 a.m.

" Here our troubles more or less finished; the Alfuega (Customs) were no trouble, our registered luggage being sealed and passed on, and we could get fruits, coffee, rolls, and excellent lager beer at all the stations. From there to Pamphiloso our train travelled quite fast and on excellent track, and at Pamphiloso we had an excellent dinner, a couple of hours' rest, and caught the Lisbon-Oporto express (a train comparing well with any of the crack French trains), and finally reached our hotel at 1 a.m., Friday, October 4th.

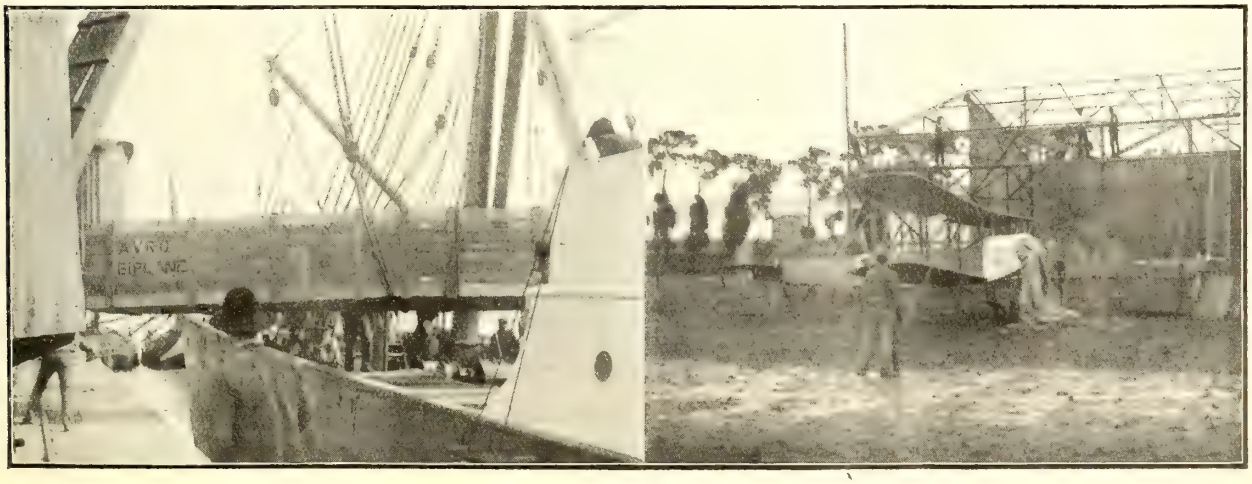
" On Friday we found the boat and the 'bus had not arrived, and that on Saturday, the ' festa,' it would be impossible to get anything done. So Saturday and Sunday we lounged round Lisbon, watching the people making holiday, which proved reasonably amusing.

" On Monday morning we watched the unloading of the crates from the steamer, and the placing of same on one bullock-cart, after which we dejeunéd and went out to the flying ground at the Hippodrome at Belem. There was then the beginning of the skeleton of a hangar for us. The crates were unloaded by Portuguese labour about 6 p.m., without serious damage, and left for the night. Next morning it rained, (Real rain, reminiscent of Salisbury.) We waited till it stopped, and went out. Hangar as before. Carpenters could not work in the rain, and it was not worth their while to come for part of a day. The ground is a sticky clay. An inch of rain turns it to a pudding, which sticks to one so that it is always a question whether the earth comes with your boots or your boots stay in the earth. Well, we got crates open and started. Got wheel-base on, stood machine up, and put tail, rudder, etc., and inside plane sections.

" That night it rained again, and the ground was worse, and the machine very wet next morning. That evening we had machine all together, and ready for tuning up, and had a shot at running the engine to please the Minister of War. Engine would not start. Left it to the rain again.

" Next morning overhauled things generally. Found distributor of engine not making contact, and switch wire shorted, and got running quite nicely. Then had final run round bolts, split-pins, strainers, etc., checked planes for truth, and left for lunch.

" In evening, about 5, Perry went off in excellent style, making three flights of 10, 10, and 15 mins. up the Tagus to Lisbon and back at about 1,000 ft. The Minister of War refused to go as a passenger, and refused permission to several army officers, so the second and third flights he took



The arrival of the Avro, and its first appearance in Portugal

a Mr. Wessel (a friend in the hotel), of the Vacuum Oil Co., and a Dutch journalist, as passengers. This evening the shed had a roof (canvas), so we pushed machine in comparative dryness. Next afternoon the performance was more or less repeated, Perry going out about 5, and making three flights, one solus and two with passengers, one of them being Director of the Naval College.

"The ground is pretty bad, and there is only one way out—up a slope and over the houses about 280 yards away, and, if the engine gives out, into the houses. Also, there does not seem to be another landing ground round Lisbon at all.

"Monday (yesterday) was windy, and the Minister did not turn up, so again no flying. Early this morning, however, we were out, H. V. Roe having a joy-ride over Lisbon at 2,500 ft.

"The weather conditions here are not bad, prevailing winds up and down river, and not many bumps, except low down and close to the river-bank. Curiously, over the city, at 1,000 ft., the air always seems steady, in spite of the mountainous nature of the town and the strength of the sun.

"The Portuguese generally seem keen and interested, as do a fair number of individual officers and officials; but, although there is a special Government Commission to inquire into and decide upon the arrangements for an aerial fleet, none of them has yet been to the aerodrome.

"Trescartes, who is with the Maurice Farman belonging to an Oporto paper, is next door to us, and goes out every little while. A Voisin belonging to another paper is being erected here, and a hydro Dep. is expected soon, so Lisbon should see a fair supply of flying shortly.

"We are completely unable at present to find out what they want us to do after they have accepted the machine, but it looks as though they thought they had only to put an officer on board, start the engine, and let him fly.

Writing on the 19th, Mr. Sayers says:—"We had an official taking-over performance on Wednesday last, when Perry made a couple of flights, first solus, reaching 1,100 metres (3,600 ft.), and then for a 15 mins. run round with a passenger. Whereafter the 20,000 people in the vicinity distributed themselves over the ground, and further flying became impossible.

"About 7.30 a.m., on Thursday, Perry made a nice flight of 18 mins. up the Tagus and back, with a passenger. He then went out with another passenger, and flew for 20 mins., making a great circuit of the surrounding country. During the flight wind got up to about 46 m.p.h. Perry was quite happy at 700 metres, about 5 miles from aerodrome, when engine started to miss, and finally one cylinder cut out, then engine started missing horribly all over the show. He started for home at once, but almost immediately got into wind dead against him, and took 12 mins. for 5 miles, dropping steadily. At about 150 ft. over the Tagus he came to the conclusion that it was not safe to clear the houses between river and flying ground, with practically no engine, so landed very nicely about 50 yards from beach, in about 10 ft. of water. Nothing broken, except propeller, and neither Perry nor his passenger even got their feet wet. Engine trouble due to exhaust valve jammed open."

Apologies.

The Committee of the Aerial League Dance at Richmond, to-night, tender their apologies to the many applicants for tickets whose requests have had to be refused owing to lack of room.

The Week-End at Hendon.

As usual, there was excellent flying at Hendon on Saturday, and it is satisfactory to note that many thousands of people came to see it, thus showing not only that the interest in aviation is steadily maintained, but that people realise that as good flying may be seen now as in the height of the summer. As a matter of fact, the chances are that there will be even better flying during the winter, simply because there is more chance of calm and daylight at the same time than there is in the summer, when the heat causes dangerous winds until the evening calm comes. When the days grow really short during the next three months it will be well to go to the aerodrome quite early in the day and lunch there, for there will be plenty of good exhibition flying and passenger carrying from midday, or even earlier, until dark, and there are many worse ways of spending the daylight hours of a winter Sunday than in watching first-class flying on the latest type machines.

The first event of importance after lunch on Saturday was the appearance of the new 100-h.p. British Deperdussin three-seater piloted by Mr. Gordon Bell. This is the first three-seater monoplane built in this country, and a very handsome piece of work it is. The two passengers sit side by side in front of the pilot, and appear to have ample room. Mr. Bell took the machine up alone, and in spite of an untuned engine it lifted easily and appeared to fly really well, for he did neatly banked turns with his usual assurance. The machine has been ordered by the War Office, and should prove a valuable acquisition.

About the same time Mr. Hucks made a fine flight on his 70-h.p. tandem Blériot, going up to about 6,850 ft. and coming down in a long and beautifully judged spiral glide. Mr. Pickles also flew excellently on the little Caudron, which he now handles in masterly fashion, his spiral glides being as nearly perfect as possible.

Mr. Grahame-White and Mr. Travers on the 70-h.p. Farman made several flights, and Mr. Noel on the 80-h.p. Farman was performing evidently much to his own amusement, for he was twisting and bouncing the big machine about in a most entertaining way. Lieut. Spencer Grey, R.N., flew the 60-h.p. Deperdussin in good style.

During the afternoon the final of the Speed Handicap, postponed from the previous Saturday, was flown off, the winner being Mr. Noel—a highly popular win—Mr. Desoutter being only a few seconds behind, and Mr. Louis Turner a close third. Mr. Hucks was just closing with the field in the last lap, and looking all over a winner, when in dodging Desoutter's wash he knocked his petrol tap shut, and before he could see what was the matter he had come down suddenly right the other side of the ground. One could see he had landed all right, so anxiety on his account was allayed.

After the racing Mr. Grahame-White was flying till nearly dark on the 70-h.p. Farman, taking up several passengers.

Altogether it was quite a success as a meeting, and should encourage the management to keep competition flying going on right through the winter.

In spite of very gusty 25 m.p.h. wind there was good flying on Sunday. Mr. Louis Noel started punctually at 3.30 and gave an excellent exhibition flight on the 80 h.p. Henry Farman biplane, flying for about 20 minutes. Later, Mr. Gustav Hamel went out on his Blériot monoplane, making several flights in his usual hair-raising manner.



Mr. Copland Perry landing on the Avro at Belem, and his last "landing" in the Tagus.

The Royal Flying Corps.

The following list of officers of the Royal Army Corps is taken from the Monthly Army List for October (the first appearance in that conservative publication of a corps which has been in existence since May last).

The numbers prefixed to officers' names in the Military Wing, Royal Flying Corps, denotes the squadron to which they are attached.

CENTRAL FLYING SCHOOL, UPAVON, SALISBURY PLAIN.

Commandant.

Paine, Capt. G.M., M.V.O., R.N., May 15th, 1912.

Secretary.

Lidderdale, Asst. Paymr. J. H., R.N., May 15th, 1912.

Medical Officer.

Cordner, Capt. R. H. L., R.A.M.C. (*temp.*).

Quarter Master.

Kirby, Hon. Lt. F. H., Qr.-Mr., May 20th, 1912. *Hon. Lt.* April 26th, 1912.

Instructor in Theory and Construction.

Cook, Lt.-Col. H. R., R.A. (L), May 20th, 1912.

Instructor in Meteorology.

Not yet Appointed.

Instructors in Flying.

Longmore, Lt. A. M., R.N., May 15th, 1912.
Gerrard, Capt. (*temp. Maj.*) E. L., R.M., May 15th, 1912.
Fulton, Capt. J. D. B., R.A. (L), May 20th, 1912.
Broke-Smith, Capt. P. W. L., R.E., May 20th, 1912.

Inspector of Engines.

Randall, Eng.-Lt. C. R. J., R.N., May 15th, 1912.

Naval Wing.

No Entries.

MILITARY WING.

(Head Quarters—South Farnborough.)

Officer Commanding and Officer in Charge of Records.

Sykes, Capt. (*temp. Maj.*) F. H., 15 Hrs., *p.s.c.* (1), S. Farnborough, May 13th, 1912; February 25th, 1911.

Assistant to Officer in Charge of Records.

Burch, Major W. E. S., ret. pay. (*Res. of Off.*), June 24th, 1912.

1st Squadron (Airships and Kites), South Farnborough.
2nd Squadron (Aeroplanes), Salisbury Plain.
3rd Squadron (Aeroplanes), Salisbury Plain.
4th Squadron (Aeroplanes), South Farnborough.
5th, 6th, 7th and 8th, Not yet Formed.
Flying Depot L. of C., South Farnborough.

Squadron Commanders.

d Carden, Capt. (*temp. Maj.*) A. D., R.E., May 20th, 1912.
3 Brooke-Popham, Capt. (*temp. Maj.*) H.R.M., Oxf. and Bucks L.I., *p.s.c*, May 20th, 1912.
2 Burke, Capt. (*temp. Maj.*) C. J., R. Ir. Regt., May 20th, 1912.
1 Maitland, Capt. (*temp. Maj.*) E. M., Essex R., May 20th, 1912.

Flight Commanders.

3 Allen, Capt. C. R. W., Welsh R., July 1st, 1912.
2 Raleigh, Capt. G. H., Essex R., July 1st, 1912.
3 Beor, Lieut. (*temp. Capt.*) B. R. W., R.A., July 1st, 1912
3 Conner, Lieut. (*temp. Capt.*) D. G., R.A., July 1st, 1912.
1 Waterlow, Lieut. (*temp. Capt.*) C. M., R.E., July 1st, 1912.
2 Reynolds, Lieut. (*temp. Capt.*) H. R. P., R.E., July 1st, 1912.

Flying Officers.

2 Dawes, Capt. G. W. P., R. Berks R., May 13th, 1912.
2 Longcroft, Lieut. C. A. H., Welsh R., May 13th, 1912.
2 Hynes, Lieut. G. B., R.A., May 13th, 1912.
1 Hetherington, Lieut. T. G., 18 Hrs., May 13th, 1912.
2 Porter, Lieut. G. T., R.A., May 13th, 1912.
2 Carfrae, Lieut. C. T., R.A., May 13th, 1912
3 Fox, Lieut. A. G., R.E., May 13th, 1912.
1 Fletcher, Lieut. J. N., R.E., May 13th, 1912.

Adjutant.

Barrington-Kennett, Lieut. B. H., G. Gds., May 20th, 1912.

Quarter-Master.

Pryce, Hon. Lieut. W. J. D., Qr.-Mr. (*hon. Lieut.*), June 20th, 1912.

RESERVE.

Henderson, Col. (*temp. Brig.-Gen.*) D., C.B., D.S.O., *p.s.c.* (*Dir. of Mil. Training*), Sept. 21st, 1912.
Bell, 2nd Lieut. C. G., Spec. Res., R.F.C., no Date.

SPECIAL RESERVE.

2nd Lieutenants (on Probation).

Charteris, R. L., July 17th, 1912.
Abercromby, R. O., July 17th, 1912.
Corbett, Wilson D., July 20th, 1912.
Dobard, T. O'B., July 27th, 1912.
Cutler, H. D., July 27th, 1912.
Young, D. G., July 27th, 1912.
Barry, R. R. S., August 10th, 1912.
Gibson, W. E., September 4th, 1912.
Jennings, M. R. N., September 11th, 1912.
Pizey, C. P., September 21st, 1912.

Explanation of Abbreviations.

d: On the Strength of the Depot.
p.s.c: Staff College Graduate.
R.N.: Royal Navy.
R.E.: Royal Engineers.
R.A.: Royal Artillery.

The Royal Aero Club.

At the Committee meeting on the 15th inst. the following new members were elected:—M. G. Christie, W. H. Harrison, William Snowdon Hedley, Lieut. A. C. H. MacLean, Henry G. Melly, D. W. Powell, Capt. C. L. Price, Lieut. H. D. Saward, and Lieut. Frederick Ernest Styles. Total membership to date 1,450.

The following aviators' certificates were granted:—314, A. M. Wynne (Grahame-White biplane, Grahame-White School, Hendon); 315, John Herbert James (Caudron biplane, Ewen School, Hendon); 316, Lieut. G. I. Carmichael, R.F.A. (Bristol biplane, Bristol School, Brooklands); 317, 1st Air Mechanic V. C. Higginbottom (Avro biplane, Central Flying School, Upavon); 318, 2nd Lieut. D. L. Allen, 87th Royal Irish Fusiliers (Grahame-White biplane, Grahame-White School, Hendon); 319, Lieut. L. Loultcheff, Bulgarian Army (Bristol biplane, Bristol School, Brooklands); 320, Lieut. R. G. H. Murray, 9th Gurkha Rifles (Bristol biplane, Eastbourne Aviation School, Eastbourne); 321, Dr. D. E. Stodart (Caudron biplane, Ewen School, Hendon); 322, Edward Birch (Blériot monoplane, Melly School, Waterloo, Liverpool); 323, W. L. Hardman (Blériot monoplane, Melly School, Wateroo, Liverpool); 324, Rudolph Hölscher (Grahame-White biplane, Grahame-White School, Hendon), (subject to sanction of Aero Club of Germany); 325, E. N. Fuller (Grahame-White biplane, Grahame-White School, Hendon); 326, A. V. Bettington (Bristol monoplane, Bristol School, Salisbury Plain); 327, Capt. R. S. H. Grace (13th Hussars), (Bristol biplane, Bristol School, Salisbury, Salisbury Plain); 328, Lieut. C. L. Courtney, R.N. (Short biplane, Royal Naval Aviation School, Eastchurch); 329, C. W. Wilson (Grahame-White biplane, Grahame-White School, Hendon); 330, Paymaster E. R. Berne, R.N. (Short biplane, Royal Naval Aviation School, Eastchurch); 331, Howard Theophilus Wright (Farman biplane, Sopwith School, Brooklands); 332, Harold Wesley Hall (Bristol monoplane, Bristol School, Salisbury Plain); 333, Albert Deakin (Electrician, R.N.), (Short biplane, Royal Naval Aviation School, Eastchurch); 334, Henry C. Bobbett (Boatswain, R.N.), (Short biplane, Royal Naval Aviation School, Eastchurch).

The Michelin Cross-Country Prize.

The competition for this year's British Empire Michelin prize of £600 closed on the 15th inst. Mr. S. F. Cody was the only competitor who made the cross-country circuit of 186 miles in accordance with the rules. The Committee, after examining the Observers' Reports and Certificates relating to the aeroplane, unanimously awarded the prize of £600 and trophy to Mr. S. F. Cody. Mr. Cody made two attempts, and his successful flight took place on Saturday, the 12th inst., over the following circuits:—

Laffans Plain, Larkhill, Newhaven, Brooklands, Laffans Plain.

Starting at 11.50 a.m., the complete circuit was accomplished without alighting, at 3.16 p.m.

The Royal Aero Club wishes to record its thanks to the following gentlemen who kindly acted as official observers in connection with the competition:—

Lieut. C. Longcroft, R.F.C., Laffans Plain; Major R. Brooke-Popham, R.F.C., Larkhill; O. Mellersh, Newhaven; and G. Handasyde, Brooklands.

The Week's Work.

MONDAY, October 14th.

R.F.C. (Central School).—No flying early owing to strong S.W. wind. Very dull, wind to north in evening—moderate. On Avro 404 Capt. Risk 25 mins. over Tidworth and back, Lieut. Smith-Parry 15 mins. On Avro 406 Capt. Fulton, R.F.A., 8 mins.; Lieut. Abercromby 15 mins. On Maurice Farman 411, Lieut Longmore, R.N., 9 mins.; Lieut. Waldron 32 mins.; Major Gerrard 8 mins.; Lieut. Winfield Smith 6 mins.

R.F.C. (Lark Hill).—Lieut. Wadham out on 205, making a good flight for 20 mins., after which passenger trip with Air Mechanic Hill. Wind very choppy. Lieut. Lawrence on same machine. Lieut. Ashton out on Maurice Farman, putting in splendid flying for 20 mins., after which Sergt. Ridd made a good flight. Air Mechanic McCudden on Maurice Farman in choppy wind over Bulford Camp, being at times lost in clouds, and landing nicely from 2,000 ft.

Hendon.—Grahame-White School out early. Mr. Lewis Turner with Lieut. Birch giving him instruction. In evening Capt. Hallahan and Mr. Howard-Wright doing good straights on No. 7 biplane; Mr. Fowler straights on 25-h.p. Blériot.

W. H. Ewen School out at 4.15 p.m., when fog lifted. Under instruction of M. Baumann, Mr. M. Zubiaga had first instruction on monoplane No. 1, while Mr. Russell put in practice. Mr. Sydney Pickles had 35-h.p. Caudron out and after short test, Capt. Chamier, Lieut. E. Conran, and Mr. H. James did straights, making good landings.

At Deperdussin School, in morning, Instructor Brock testing, but too gusty for pupils. In afternoon, just before dusk, Instructor Brock took out 60-h.p. two-seater for first time and did steady circuits at 300 ft. and more.

At Bleriot School.—Messrs. Welburn and Gratien put in good practice in evening doing straights.

Brooklands.—At Martin Handasyde's, morning, Mr. Petre out for about an hour in direction of Woking and Guildford, and returning over 3,500 ft.

At Flanders School.—Mr. Raynham on monoplane in morning, doing circuits for about half an hour in exhibition style.

At Sopwith School.—Mr. Hedley out in morning on new Sopwith-Wright machine for about half an hour. A.B.C. motor continues to give more than satisfactory results.

Bristol School.—Mr. Bendall on biplane, Capts. Boger and Pigot, Lieut. Pretyman, Messrs. Payze and "Darracq" straights, and Major Forman and Lieut. Rodwell up as passengers.

Salisbury Plain (Bristol School).—Strong wind, Mr. Pizey out in afternoon with Mr. Gray. Mr. Harrison with Capts. Williams, Kunhardt, and Penfold. Mr. Gray passenger with Mr. England.

TUESDAY, October 15th.

R.F.C. (Central School).—Clear, calm and frosty. On Avro 404 Capt. Fulton, R.F.A., with Air-Mechanic Hodgson on practice grounds 30 mins.; Capt. Risk 15 mins.; Lieut Abercromby 20 mins. splendid flight at 2500 feet, ending with a fine spiral. Major Gerrard, R.M.L.I., 10 mins.; Major Higgins 17 mins.; Capt. Salmond 12 mins.; Lieut Stopford 20 mins.; Lieut Cholmondeley 6 mins.; Lieut. Smith-Barry 10 mins. On Avro 406 Air-Mechanic Higginbottom 10 mins.; Capt. Risk 5 mins.; Capt. Fulton, R.F.A., with Lieut Cholmondeley 25 mins.; with Lieut. Stopford 25 mins.; with Lieut. Shepherd 25 mins.; Lieut. Cholmondeley two 5 mins.; Lieut. Shepherd 5 and 9 mins.; Capt. Risk two 20 mins., one over to Lark Hill and back. Lt. Abercromby 15 mins. On Maurice Farman 411, Lieut. Hubbard 23 and 75 mins.; Lieut. Longmore, R.N., with Capt. Becke 5 mins.; Capt. Becke two 25 mins.; Lieut. Young 30 mins.; Lieut. Martyn 5 mins. On Maurice Farman 403 Lieut. Lushington, R.M.A., to Lark Hill.

R.F.C. (Farnborough).—Mr. de Havilland on B.E.2, taking passengers for long flights. M. Verrier arrived from Hendon on new Maurice Farman with passenger, then gave a fine exhibition of flying for 30 mins. Mr. Gordon Bell out on 70-h.p. Gnome Deperdussin. Capt. Raleigh two long flights on Bréguet biplane. Major Moss and Lieut. Herbert good flights on Maurice Farman 207.

R.F.C. (Lark Hill).—Fine day and good flying done. Major Brooke-Popham out on 205, making splendid flight for quarter-hour. Lieut. Wadham on same, also putting in good flying. On one flight Air Mechanic Wilson as passenger for long trip, after which Lieut. Wadham made three more flights, reaching 2,000 ft. Lieut. Lawrence on 205, making two flights by himself, after which he made four passenger trips with Air Mechanics Strugnell, Whenham, Costigan, and Webb. Capt. Allen afterwards up for 22 mins. Lieut. Ashton on Maurice Farman, and Capt. Dawes later for fine flight on same machine. Air Mechanic McCudden on Maurice Farman over to Central Flying School, and landed back in aerodrome after nine spiral turns from a height of over 3,000 ft. Lieut. Ashton afterwards took machine over, after which Capt. Dawes went out, but, owing to severe engine trouble, had to come down near Fargo Woods.

Eastchurch.—Ideal flying weather from early morning until dark. In early morning Navy School biplanes out. Lieut. Seddon, R.N., on Short biplane S.38, over 8,000 ft., very fine flight finishing with splendid glide. At 11.20 a.m. Engineer-Lieut. Briggs, R.N., with E.R.A. Rees, started for Dover on S.38, and after circling ships in harbour arrived back at 1.20 p.m. During fine non-stop flight he reached 7,050 ft., which is about record for naval officer with passenger. School biplane S.34 and new Bristol biplane out most of day, amongst those flying being Lieuts. Gregory, Parke, Malone and Courtney, R.N., Capt. Gordon, R.M.L.I., Boatswain Bobbett, and Electrician Deakin, R.N. Short triple-twin biplane also out, both Engineer-Lieut. Briggs and Lieut. Malone, R.N., making good flights.

Hendon.—At Grahame-White School, in morning, Capt. Hallahan flew his first circuit at good altitude on No. 7 biplane, Lieut. Small flying figures of eight on No. 5 biplane, ready for brevet tests. Mr. Fowler straights on 25-h.p. Blériot. Mr. Howard-Wright straights on No. 7 biplane. In evening Mr. Howard-Wright good practice at straights on No. 7 bipane, Mr. Lan Davies straights on 35-h.p. Blériot.

W. H. Ewen School commenced at 10 a.m., when Mr. Sydney Pickles, after test flight on 35-h.p. Caudron, handed over to Capt. Chamier, who started on first circuit which he did admirably, landing exactly where indicated. In afternoon, Mr. Sydney Pickles, after test on 35-h.p. Caudron, handed over to Capt. Chamier, who made three circuits steadily at 150 ft. Mr. H. James then started for first circuit and did two. Lieut. E. Conran also did first circuit. M. Baumann getting good results on monoplanes No. 1 and 2. Mr. L. Russell hopping and Mr. M. Zubiaga rolling. Lieut. Maurice W. Noel (new pupil) received first instruction.

At Deperdussin School, at 9 a.m., fog lifted and Mr. Brock took out racer for test. In afternoon, Mr. Spratt doing figures of eight. Mr. Ware circuits. Capt. Tucker couple of times round ground. Broken chassis wire delayed matters, but Mr. Spratt went for his brevet and passed first part, doing small eights and keeping well within ground.

At Bleriot School.—Messrs Gandillon and Gratien on No. 2 doing straights and circuits. In afternoon Messrs. Sacchi, Welburn, Gandillon and Gratien doing straights.

Brooklands.—At Sopwith School, in early morning, Mr. Hawker out on Sopwith-Wright trying for Duration Michelin, and put up good flight for about three and a half hours, when brought down by valve trouble.

At Martin Handasyde's, Mr. Petre out for three-quarters of an hour doing steep banked turns, finishing with a fine glide from 2,000 ft.

At Percival School, in morning, Mr. Gordon Bell out for 20 mins. on Anzani Caudron biplane. Later, Mr. Percival flew circuits on same machine in excellent style.

At Flanders School, Mr. Raynham did a deal of flying in usual fine style.

Bristol School.—Mr. Bendall with Major Forman and Lieuts. Rodwell and Bovle, Capts. Boger, Pigot and Read, Lieut. Pretyman, and Messrs. "Darracq" and Payze flying. In evening Capt. Boger and Lieut. Read both took certificates in good style. Other pupils practising.

At Vickers School.—Messrs. Barnwell and Knight out on both school Farmans, giving tuition to Messrs. Corballis and Soames. Mr. Corballis afterwards took over No 1 Farman and put in excellent straights alone. Mr. Barnwell then out on Vickers No. 3, testing before handing over to Capt. Stott. Lieut. de la Ferté and Mr. Soames, the former doing very good straights, and latter rolling, as it was his first outing on monoplane. Mr. Barnwell then out on Vickers No. 5, and put in a beautiful flight of 20 mins. over surrounding country at 1,500 ft. Lt. de la Ferté then out on No. 3, and did some excellent straights. Mr. Barnwell later on No. 6 for circuits with a passenger.

Salisbury Plain (Bristol School).—Mr. Pizey with Lieut. Parker. Lieut. Parker then for brevet tests, which he accomplished. Capt. Williams and Mr. Gray as passengers with

Mr. Pizey. Mr. Gray and Mr. Lywood given trips in monoplane. Mr. England with Capt. Williams and Lieut. Shekleton. Prince Cantacuzène two long flights on monoplane. Capt. Lucina and Mr. Lywood both carried out. Capts. Williams and Penfold each solus. Lieut. Wall on biplane; Mr. Lywood going for brevet tests made two sets of figures of eight, but each time failed to land close enough to mark.

WEDNESDAY, October 16th.

R.F.C. (Central School).—Very foggy early, clear by 8 a.m. Wind to south-west during afternoon and rising very strong prevented flying.

R.F.C. (Farnborough).—Very strong wind. Mr. de Havilland on B.E.2, Capt. Raleigh on Bréguet, both flying well.

Eastchurch.—Paymaster Berne, R.N., out at 7.5 a.m. on Bristol 35 mins. Lieut. Seddon, R.N., at 7.45 a.m. on same 25 mins. Nothing further till 5.15 p.m., when Engineer-Lieut. Briggs, R.N., did a 15-mins. flight on Short triple-twin biplane.

Hendon.—W. H. Ewen School out at 9.30 a.m. under M. Baumann. Mr. L. Russell straights. Mr. M. Zubiaga and Lieut. M. W. Noel rolling. Mr. Sydney Pickles at work with pupils on 35-h.p. Caudron. Capt. Chamier and Mr. H. James flying. Mr. Sydney Pickles then made exhibition flight in rising wind, doing banked turns and finishing with glide from 500 ft.

At Deperdussin School, in morning, arrival of 100-h.p. machine for War Office caused considerable interest.

At Bleriot School, M. Gratien doing straights.

Brooklands.—At Percival School, Mr. Percival out for considerable time in early morning on little Caudron. This little 'bus really performs marvels for her size.

At Martin Handasyde's, during afternoon, Mr. Petre out for wide cross-country circuits in spite of gusty wind.

At Flanders School, in early afternoon, Mr. Raynham flying strongly as usual, caring nothing for nasty wind.

At Vickers School.—Messrs. Barnwell and Knight out on Farmans, giving instruction to Messrs. Corballis and Soames. Mr. Soames, finishing a straight, had misfortune to land heavily, and did little damage. Capt. Wood out later on Farman No. 2, and, owing to wheel buckling, machine turned sharply and caught Vickers No. 3. Capt. Wood then out on No. 3 machine for test before handing over to Capt. Stott, who is getting on well. Mr. Barnwell then out on No. 5 for usual excellent flight, going up to 2,500 ft. and finishing with a beautiful glide.

Bristol School.—Messrs. Merriam and Bendall with Major Forman, Lieuts. Rodwell and Boyle, Capt.. Pigot flying. Mr. Payze took his certificate well. Mr. Merriam and Lieut. Kitson to 1,000 ft. and glided down with propeller stopped.

Salisbury Plain (Bristol School).—Mr. England testing, but fog too thick. Later with Mr. Featherstone, Mr. Gray, and "Capt." Penfold. Mr. Pizey with Mr. Gray and then Prince Cantacuzène in tandem monoplane; Capt. Lucina on biplane, Prince Cantacuzène on tandem monoplane in quite strong wind and landing neatly. Mr. Pizey in evening with Mr. Gray. Prince Cantacuzène two long flights in tandem monoplane. Capts. Lucina, Williams, and Penfold all flying.

THURSDAY, October 17th.

R.F.C. (Central School).—Choppy North-West wind. Light mist. On Avro 404 Lieut. Cholmondeley 13 mins.; Lieut. Shepherd 7 and 20 mins.; Captain Risk 12 mins.; Lieut. Abercomby 6 mins. and 40 mins. over to Lark Hill and back; Major Higgins 10 mins.; Lieut. Anderson two 10 mins.; Capt. Salmond 6 mins.; Capt. Fulton, R.F.A., with Air-Mechanic Hodgson 30 mins. on practice ground. On Avro 406 Lieut. Anderson 15 mins.; Lieut. Smith-Barry two 15 mins.; Lieut. Stopford two 14 mins.; Air-Mechanic Higginbottom 10 and 17 mins. at 1600 feet; Lieut. Cholmondeley 10 and 8 mins.; Lieut. Shepherd 11 and 8 mins.; Capt. Risk 10 mins. On Maurice Farman 411, Major Higgins 55 mins.; Lieut. Longmore, R.N., with Capt. Becke 60 mins. to Farnborough; Capt. Becke 98 mins. from Farnborough; Lieut. Hubbard 43 mins.; Lieut Martyn 15 mins.; Major Trenchard 20 mins.

R.F.C. (Farnborough).—Wind very brisk and bumpy. Lieut. Longmore, R.N., arrived from Upavon on Maurice Farman 411 with passenger; time taken, one hour. About 10.45 a.m. passenger flew machine back to Upavon. Mr. de Havilland out testing biplane 206 after repairs. Later out on B.E.2. Capt. Raleigh on 70-h.p. Renault-Bréguet. About 4 p.m., Mr. Sopwith several flights on Sopwith biplane. Mr. Cody out on military biplane. Mr. de Havilland on B.E.2. Capt. Raleigh on Bréguet. Major Moss 15 min. flight on Maurice Farman 207 at 2,000 ft. Lieut. Herbert 20 min. on same machine; all flying till dusk, five machines being up at same time.

Eastchurch.—Weather bad until 3.30 p.m., and then Navy School biplane S.34 out with Capt. Gordon, R.M.L.I., Lieut. Seddon, R.N., and Boatswain Bobbett, R.N., doing 10-mins. spells. Afterwards Capt. Gordon out on same machine with Carpenter Collins, R.N., for instruction. Bristol biplane also out, piloted in turn by Paymaster Berne, R.N., Boatswain Bobbett, R.N., Lieut. Courtney, R.N., and Capt. Gordon.

Hendon.—At Grahame-White School, in morning, Capt. Hallahan did excellent work on brevet biplane, making good circuits, very fine flying (this was his first time on this machine). Mr. Howard-Wright making straights on No. 7 bipane, Lieut. Birch and Mr. Clarke rolling on same machine.

W. H. Ewen School out at 6.45, under instruction of M. Baumann, Mr. H. Gist straights on monoplane No. 2. Mr. L. Russell rapid progress on No. 1 Mr. M. Zubiaga and Lieut. M. W. Noel rolling well. Mr. Sydney Pickles test flight on 35-h.p. Caudron, after which Capt. Chamier, Lieut. E. Conran, and Mr. H. James got in good practice, all flying circuits and figures of eight and practising landing to the mark. In afternoon 35-h.p. Caudron again out, Mr. Sydney Pickles making fine exhibition flight and executing perfect spiral glide from 1,000 ft., doing three circles and landing with motor stopped. Another Caudron brevet was added when Capt. Chamier went for his certificate tests in excellent style on 35-h.p. Caudron, doing figures of eight with clock-like regularity at 300 ft. and landing on mark. Capt. Chamier has a natural instinct for flying, and should, with a little more experience, be in the front rank of aviators. Mr. R. S. McGregor joined the school.

At Deperdussin School, in morning, Mr. Spratt finished tests for brevet in fine style. Engine stoppage compelled him to land other end of ground, so when engine again running he took machine up again and finished landing test with ease. A little diversion was caused when Lieut. Mapplebeck took out taxi No. 2 and, when going strong, took a course for the Blackburn monoplane, heading into the rudder in best Rugby manner. Very little damage was done, the Blackburn having a twisted fuselage, and the Dep. a few strained wires. In evening taxi No. 2 out with Mr. Phelps rolling. Instructor Brock several circuits on racer.

At Bleriot School.—Messrs. Reilly, Gratien, Sacchi and Gandillon doing straights. Mr. Reilly out on "L.B 2," finding himself up to 25 feet, during a straight flight, and too near the enclosure to land did an excellently banked right-hand turn and landed beautifully, this being his first turn. In afternoon M. Gandillon did 2 circuits on No. 3, MM. Clappen and Gratien straights.

Brooklands.—At Hanriot's, in evening, Mr. Sabelli out on single-seater half an hour, banking steeply and doing beautiful figures of 8.

At Percival School, in early morning, Mr. Percival on Caudron good circuits at about 500 ft. Machine climbs amazingly.

At Flanders School, Mr. Raynham out in evening, finishing with perfect glide from nearly 3,000 ft.

During afternoon Mr. Charteris was out on Avro biplane, which has now been fitted with an 80 h.p. A.B.C. engine. Machine is remarkably fast and climbs like an arrow. Mr. Charteris flew several circuits in fine style.

At Vickers School.—Mr. Knight out with Mr. Corballis on No. 1 Farman. When over sewage farm, propeller burst, and he had to make a hasty landing, the machine turning over on her nose the moment the wheels touched, with disastrous results to the machine; pilot and pupil escaped with nothing worse than a somewhat odoriferous bath. Mr. Barnwell out on Vickers No 3, testing before handing over to Capt. Stott, who did excellently. Mr. Barnwell then out on Vickers No. 5 for circuits, going up to 2,000 ft. over surrounding country. In evening, Mr. Knight out on Vickers No. 5 for circuits, then handed machine over to Lieut. de la Ferté, who did excellent circuits. Mr. Barnwell out on Vickers No. 6, giving passenger flights to Mr. Soames and Major Cameron over surrounding country.

Bristol School.—Mr. Merriam took up Major Forman and Lieut. Boyle. Capt. Lyles got his certificate. Mr. Bendall took up Lieut. Kitson. Capt. Pigot and Mr. "Darracq" practising. In evening Mr. Bendall took up pupils.

Salisbury Plain (Bristol School).—Mr. Harrison early with Capt. Kunhardt at 1,000 ft., then with Mr. Lywood on monoplane Mr. England with Lieut. McArthur. Mr. Pizey with Mr. Gray and Lieut. McArthur. Prince Cantacuzène two flights on monoplane. Capt. Lucina, Mr. Lywood, Capts.

Penfold, Williams, and Kunhardt all flying. Mr. Harrison with Capts. Penfold and Williams, and Mr. Featherstone. Mr. England with Capt. Kunhardt and Lieut. Shekleton, Mr. Pizey with Mr. Gray. Prince Cantacuzène out as usual.

FRIDAY, October 18th.

R.F.C. (Central School).—Clear, fresh North-West wind. wind bumpy all day. No flying in morning. On Avro 404, Lieut. Cholmondeley 20 mins. to Larkhill and back; Lieut. Anderson 10 mins.; Lieut. Hartree 10 mins. On Avro 406, Capt. Risk 15 mins.; Lieut. Stopford 10 mins. Lieut. Shepherd 10 mins.; Lieut. Cholmondeley 10 mins.. On Maurice Farman 403, Lieut. Longmore, R.N., 5 mins., and with passengers 5 and 7 mins.; Lieut. Waldron 22 mins.; Lieut. Lushington, R.M.A., 22 mins. over Bulford.

R.F.C. (Farnborough).—Early, north-westerly wind, rather misty. On Maurice Farman 207, Major Moss two flights of 10 mins. each at 2,000 ft. Lieut. Herbert 25 mins. at 1,800 ft. On Bréguet 70-h.p. Renault, Capt. Raleigh 10 mins. Lieuts. Shephard, Wanklyn, and Playfair all flights of 5 mins. each. Later Capt. Raleigh for 15 mins. doing fine banked turns. Mr. Gordon Bell 1 hour's flight on new Deperdussin, reaching 2,000 ft., finishing with fine spiral glide. Mr. de Havilland on B.E.2. In evening, on Maurice Farman 207, Major Moss 10 mins., Lieut. Herbert 10 mins. Capt. Raleigh on Bréguet two flights, one 15 mins. and one 20 mins. Capt. Darbyshire 10 mins on biplane 206. Mr. de Havilland out all evening on B.E.2.

Eastchurch.—Capt. Gordon, R.M.L.I., Lieuts. Malone and Courtney, R.N., Paymaster Berne and Boatswain Bobbett, R.N., out on Bristol School biplane. Afterwards Short biplane S.34 out, Capt. Gordon and Lieut. Malone giving instruction to E.R.A.'s James and Leigh, also Shipwright Edwards. Electrician Deakin, R.N., and Private Edmunds, R.M.L.I., also flew Short S.34. At 10 a.m. Engineer-Lieut. Briggs, R.N., with E.R.A. Hackney as passenger, started on Short triple-twin biplane for Chatham, and after circling town, arrived back after non-stop flight in which he reached over 4,000 ft. Biplane S.34 out again, Paymaster Berne, R.N., and Lieut. Courtney, R.N., doing circuits. At 5 p.m. Bristol biplane and biplane S.34 out, piloted in turn by Capt. Gordon, R.M.L.I., Lieuts. Seddon and Courtney and Paymaster Berne, R.N.

Hendon.—At Grahame-White School, in morning, Mr. Howard-Wright straights on No. 7 biplane; Mr. Fowler straights on 25-h.p. Blériot. Commander Yeats-Brown, R.N., flying circuits and figures of eight; Capt. Hallahan making circuits on No. 5 bipane.

W. H. Ewen School started at 10.30, when Mr. Sydney Pickles, after test flight on 35-h.p. Caudron, handed over to Mr. H. James, who flew 4½ figures of eight, when wind suddenly springing up, he made good landing. M. Baumann busy with pupils on monoplanes. Messrs. L. Russell, M. Zubiaga, and Lieut. M. W. Noel all making satisfactory progress. In afternoon Mr. Pickles again out with 35-h.p. Caudron, and did two exhibition flights in strong wind, on each occasion reaching over 1,200 ft.

At Deperdussin School, foggy, no flying. Towards evening Mr. Brock did circuits, but wind rocky.

Brooklands.—At Martin Handasyde's, Mr. Petre flying across country in direction of Windsor.

At Percival School, Mr. Percival out for considerable time, Caudron flying strongly and well.

Mr. Charteris brought out A.B.C. Avro and put in many circuits and figures of 8 in first class style. Both the big 80-h.p. A.B.C. and its small relation, the 40-h.p., in the Sopwith-Wright, were in air at same time behaving faultlessly.

At Vickers School.—Mr. Knight out on Vickers No. 3 testing before handing over to Capt .Stott and Mr. Soames, former doing good straights, and latter rolling. Mr. Barnwell up with Mr. Soames on Vickers No. 6, giving, as usual, an excellent display. Capt. Wood also out on No. 6.

Bristol School.—Mr. Bendall with Capt. Pigot and Lieut. Kitson. Mr. Merriam with Major Forman, Lieut. Rodwell and Lieut. Boyle. Capt. Pigot flying. Lieut. Pretyman took certificate in great style, landing almost on top of observers, after flying nearly 1,000 ft.

Brighton (Shoreham).—At Avro School, Raynham returned to fly Military Competition enclosed Avro biplane and put up some good flying. His intentions were to fly for Michelin duration prize, but the machine has been standing at Lark Hill unattended so long that he finds it has not improved in lifting power and requires more tuning up, so as Mr. Flanders is busy with War Office machines and needs him, Mr. Raynham decided to fly to Brooklands where he could have finishing touch put on and also be near his other work.

At England School, Mr. Newton Smith did a circuit.

Salisbury Plain (Bristol School).—Mr. Harrison with Capts. Williams and Penfold and Lieut. McArthur. Mr. England with Capt. Kunhardt and Mr. Featherstone, Mr. Pizey with Mr. Gray. Capt. Lucina alone. Mr. Pizey first out in evening; Mr. Harrison with "Capt." Penfold to 1,000 ft. in wind of nearly 30 m.p.h., afterwards with Lieut. McArthur. Mr. England with Capt. Kunhardt and Mr. Featherstone. Mr. Pizey with Mr. Gray. Prince Cantacuzène put up good show in high wind. Mr. Busteed testing new monoplane.

SATURDAY, October 19th.

R.F.C. (Central School).—Clear, fresh north-west wind. On Avro 404, Lieut. Shepherd 12 mins., Lieut. Stopford 15 mins., Lieut. Anderson 15 mins., Major Gerrard, R.M.L.I., 8 mins.; Lieut. Cholmondeley 8 mins.; Lieut. Longmore, R.N., 10 mins. On Avro 406, Capt. Risk 20 mins., Lieut. Cholmondeley 15 mins., Air Mechanic Higginbottom 10 mins, Lieut Longmore, R.N., 8 mins., Lieut. Shepherd 8 mins. On Maurice Farman 403, Master Mechanic T. O'Connor 10 mins.

R.F.C. (Farnborough).—Early, slight south-westerly wind. On Maurice Farman 207, Lieut. Herbert 45 mins at 2,000 ft. Major Moss 10 mins. On 70-h.p. Bréguet, Lieut. Shephard, Lieut. Wanklyn and Lieut. Playfair short flights. On Bréguet 100-h.p. Gnome, Capt. Raleigh with Air Mechanic Gerrard as passenger for 10 mins. at 1,500 ft. Later left for Colchester with Lieut. Hetherington as passenger. On Bré-biplane 206, Lieut. Longcroft 15 mins., Capt. Darbyshire 25 mins. Mr. de Havilland on B.E.2 long flights, taking passengers.

Eastchurch.—In morning, Lieut. Seddon, R.N., out on Short biplane S.34 two flights, one of 25 and other of 35 mins. In afternoon Lieuts. Gregory and Malone, R.N., Private Edmunds, R.M.L.I., and Electrician Deakin, R.N., each made flights on Short S.34. Capt. Gordon R.M.L.I., on Bristol biplane with Leading Seaman Russell as passenger. Mr. McClean also out on his 70-h.p. Short tractor biplane and took up his sister, Miss McClean, as passenger.

Hendon.—Splendid exhibition flying (see special report).

W. H. Ewen School started at 6.30, M. Baumann busy with pupils on monoplanes 1 and 2. Lieut. M. W. Noel rolling. Messrs. L. Russell and M. Zubiaga rolling and hopping. Mr. Pickles on 35-h.p. Caudron, and handed over to Lieut. Eric Conran, who went for brevet tests in confident manner, making good landings on both occasions. His figures of eight were perfect and equal to those of a flyer of considerably more experience. Later Mr. Sydney Pickles went for cross-country flight lasting 45 mins.

At Bleriot School.—During morning Messrs. Sacchi, Gratien and Clappen out doing straights on "L B 3."

Brooklands.—At Sopwith School, in morning, Mr. Hedley out on Sopwith-Wright for short time, followed by Mr. Hawker.

At Hanriot's. Mr. Sabelli out on single-seater for about three-quarters of an hour in afternoon, flying in beautiful exhibition style.

Bristol School.—Mr. Merriam with Lieut. Kitson, Major Forman, and Capt. Pigot. Mr. Bendall with Lieuts. Boyle and Rodwell. Capt. Pigot alone. In afternoon, Mr. Merriam won "Get-off" Competition, and did some pretty exhibition flying, afterwards taking up pupils. Capt. Pigot and Mr. "Darracq" flying alone.

A "get off the earth" competition was held during the afternoon, the winner being Mr. Merriam, with Mr. Barnwell (Vickers) 2nd, and Mr. Spencer (own make) 3rd.

Mr. Pashley was flying well for a considerable time on the old Sommer, carrying many passengers.

At Vickers School.—Mr. Barnwell first out on Vickers No. 3 for test, followed by Capt. Stott and Mr. Soames, both doing well. Mr. Barnwell on Vickers No. 5, then off for one of usual excellent trips, going up to 2,000 ft. over surrounding country, followed by Mr. Knight and Lieut. de la Ferté, who put in some very good circuits.

SUNDAY, October 20th.

R.F.C. (Central School).—Very strong westerly wind, dull and heavy rain during day.

Hendon.—At Grahame-White School, Capt. Hallahan and Lieut. Small circuits on brevet machine, a stiff wind keeping them from starting brevet tests.

Brooklands.—At Vickers School, Mr. Barnwell testing, followed by Mr. Soames hopping. Mr. Barnwell also out for very pretty flight on Vickers No. 6 over surrounding country up to 1,200 ft. and ending with beautiful glide.

Eastchurch.—No flying owing to strong wind.

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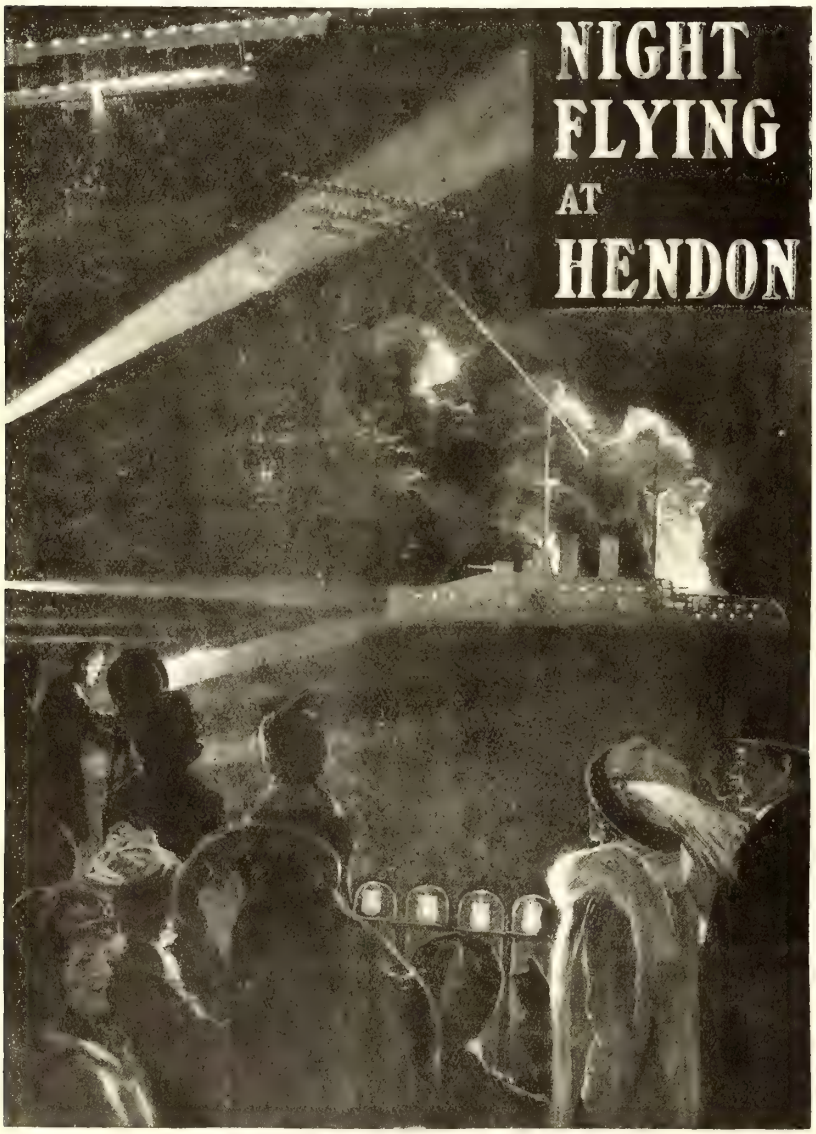
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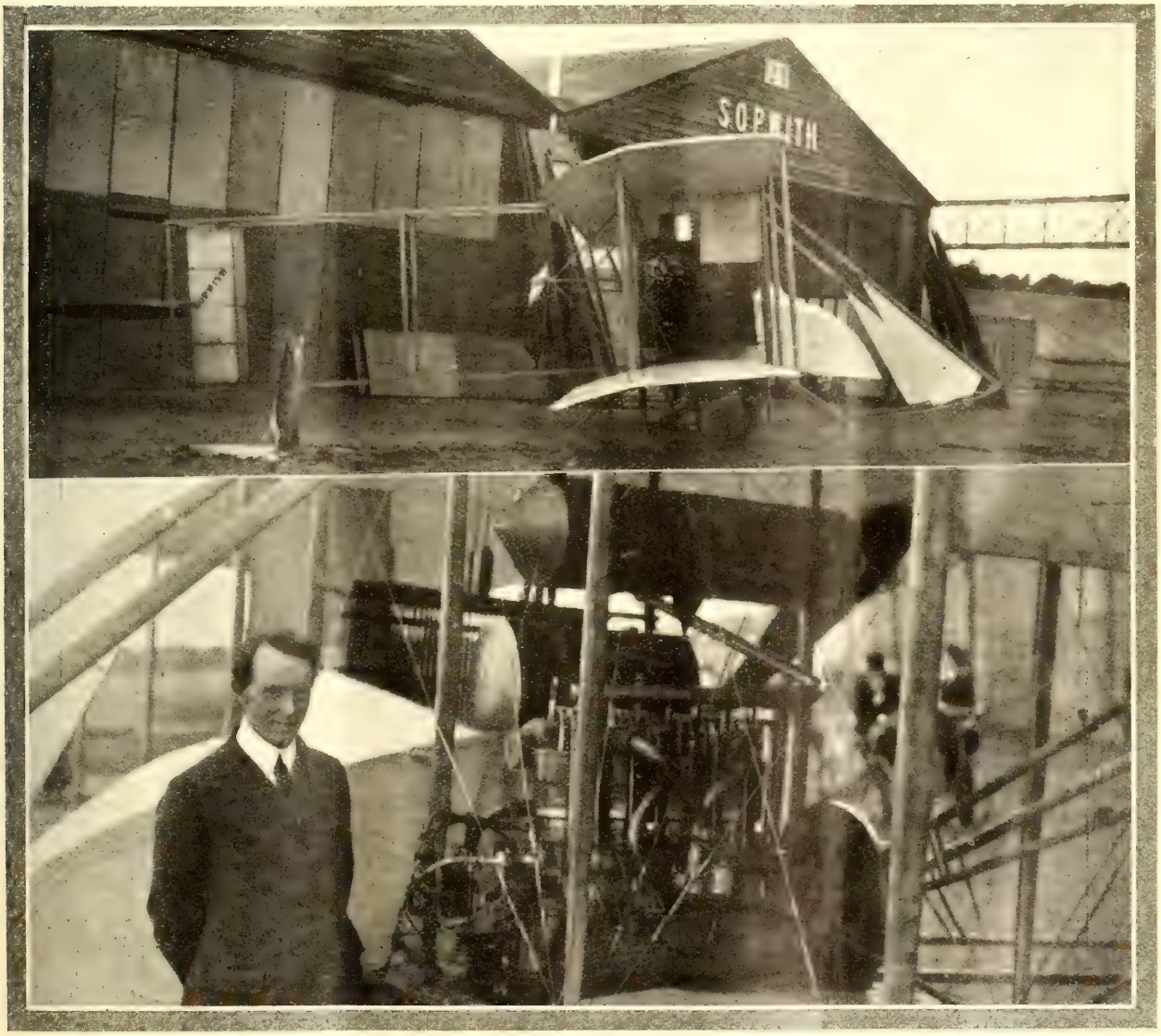
THE AEROPLANE

1D WEEKLY

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VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, OCTOBER 31, 1912. No. 18.

ALL-BRITISH.



Mr. Harry Hawker, the 40-h.p. A.B.C. Engine, and the Sopwith Biplane, the All-British Combination which set up a Duration Record of 8hrs. 23 mins. on October 24th.



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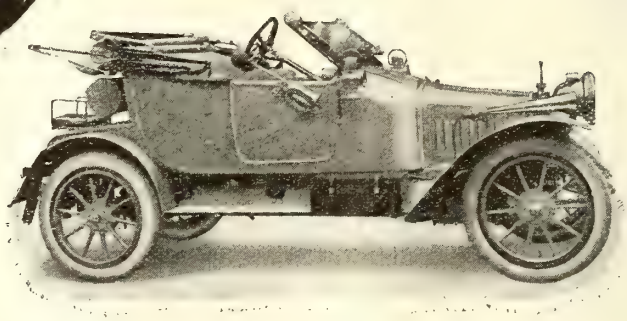
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Army Aeroplanes In Parliament—and Out.

One of life's little mysteries, and one which only those actually concerned in manufacturing the answers can elucidate, is the exact proportions of intentional evasion of the question and pure ignorance of the subject which go to make up the reply supplied to and given by a Secretary of State to the member who asks awkward questions. One would not suggest that the Secretary or Under-Secretary who gives the answers in Parliament is himself guilty of evasion, for he is, of course, compelled to depend for his facts on the replies compiled for him by the officials of his department, who may themselves be either ignorant of facts, or may deliberately distort them from mistaken ideas of what it is good for the country to know, with the result that, while he honestly believes himself to be stating a fact, he may in reality be uttering an absolute inaccuracy, or at best a sophisticated twisting of the truth which is even harder to controvert.

Being unacquainted at the moment with the facts concerning any other department of the service of the State than that dealing with aerial defence, the writer is unable to say whether the difference between the actual state of affairs and that indicated by official utterances is equally great in all departments; but, if one assumes that the same divergence exists all round, then, indeed, is this country in parlous state. Ever since a certain little group of members of Parliament began to take an interest in aviation and to ask questions about it, the replies given by the mouthpiece of the War Office for the time being in either House have been remarkable for the ingenuity with which they concealed the truth and, on occasion, suggested that which was not the truth.

One can imagine occasions when a downright, deliberate, barefaced lie thrown in the face of a dumbfounded House might be for the good of the nation; but in a general way honesty is the best policy, simply as policy, strange though it may seem to many politicians, and unfair though it may be to one's political opponents to use truth as a weapon.

In no department can honesty be better policy at the moment than in that which controls our aerial defences. While our Air Corps is in its present lamentably weak state, it is so obviously foolish to adopt a policy of bluff. When we find ourselves mixed up in a European war, we shall not be in the happy position of the Turks in 1897, who held their seacoast against the small but decently efficient Greek navy by the simple process of towing a number of ostentatious battleships out of the Golden Horn and anchoring them in the Sea of Marmora, as if ready to start on an invasion of the Greek coast, the Greeks being happily oblivious of the fact that the engines had been taken out of these ships some years before, and sold for the personal edification of the officials then in control of the Turkish navy. It would be far better for us to admit the truth, and set to work to improve our position, than to obfuscate members of Parliament and the electors of Great Britain and Ireland, as is the fashion at present.

A Modern Example.

An excellent example of the modern style was given by Mr. Tennant, the Under-Secretary for War, on October 23rd. The whole series of questions and answers is given hereafter. It is eminently satisfactory that Lord Tullibardine, Mr. Joynson-Hicks, and Mr. Lee should have again taken up the subject of Army Aeroplanes, as was suggested in The Aeroplane on October 17th, and one regrets that their able ally, Mr. Sandys, should at this moment be ordered abroad for his health's sake. One can only wish him an early return, full of renewed vigour.

Here is the debate as reported by Hansard :—

Army Aeroplanes.

11. (*a*) Mr. Joynson-Hicks asked the Secretary of State for War how many men are now employed at the Royal Aircraft Factory; and what proportion of them are engaged in inventing, and what proportion in manufacturing aeroplanes.

The Under-Secretary of State for War (Mr. Tennant) : Three hundred and sixty-one men are employed at the factory, all on experimental work or at the repair or reconstruction of Service aircraft. None are employed in manufacturing new aeroplanes.

12. (*b*) Mr. Joynson-Hicks asked how many machines of the type B.E.2 are now on order in private firms; how many are under order for construction in the Royal Aircraft Factory; how many private firms have recently received orders for parts only of aeroplanes; and how many aeroplanes will such parts make up.

Mr. Tennant : Thirteen aeroplanes of B.E.2 type are on order, and are now due from private firms. No aeroplanes are under order for construction in the factory, and no orders have been given to private firms for parts only.

13. (*c*) Mr. Joynson-Hicks asked how many effective aeroplanes are now owned by the British Army, and how many of them are of English manufacture.

Mr. Tennant : Thirty-six effective aeroplanes are in the possession of the British Army, of which twelve are at the Central Flying School. Of these nineteen are of English manufacture. In addition, four machines are under reconstruction at the Royal Aircraft Factory.

(*d*) Mr. Joynson-Hicks: How does that compare with the number owned by foreign Powers?

Mr. Tennant: I should like to have notice of that question.

(*e*) Marquess of Tullibardine: How many are monoplanes and how many biplanes?

Mr. Tennant: The question of monoplanes and biplanes is the subject of an inquiry by a Committee. I am answering a question on this later on.

14. (*f*) Mr. Joynson-Hicks asked how many officers and men are now actually enrolled in the Army branch of the Royal Flying Corps, and how many of them are efficient pilots.

Mr. Tennant: The figures are as follows:—

Officers—

Gazetted	24
Appointed, but not yet gazetted	6
Accepted, but not yet appointed	93
N.C.O.'s and men	440

making a total of 123 officers and 440 non-commissioned officers and men. Of the latter, 173 have not yet been fully enrolled.

Pilots.

Officers—

Efficient military pilots	23
Undergoing military training as pilots ...	28
With R.A.C. certificate only	40
N.C.O.'s and men (second-class pilots) ...	6

making a total of 97.

(*g*) Mr. Joynson-Hicks: How many applications for officers and men to be enrolled are still pending?

Mr. Tennant: I must ask for notice of that question.

15 and 17. (*h*) Mr. Joynson-Hicks asked the Secretary of State for War (15) whether, in consequence of the recent Army tests of aeroplanes, he and his advisers have arrived at any decision as to the best form of machine for use in the Army Flying Corps; and whether his prohibition of monoplanes is intended to be permanent; and (17) whether any decision has been arrived at with regard to the use in future of monoplanes by the Army aviation branch.

Mr. Tennant: As a result of the competition, valuable information as to suitable types of aeroplanes for military use have been obtained, but the Army Council does not propose, at the present stage, to decide upon any particular type for exclusive use. As regards monoplanes, a scientific committee is now considering certain structural questions, and monoplanes will not be used in the Military Wing until the Committee has reported.

(*i*) Marquess of Tullibardine: Will the decision be announced as soon as possible in the interests of the firms which at the request of the War Office went in for the manufacture of monoplanes?

Mr. Tennant: The decision will, of course, be arrived at as soon as possible. But there must be considerable experiments.

(*j*) Mr. Lee: How many have we actually built?

Mr. Tennant: I stated in answer to the previous question that we have thirty-six.

(*k*) Mr. Lee: Exclusive of monoplanes?

Mr. Tennant: Yes, I imagine so. I am not sure.

The questions have been lettered so as to simplify reference to them in the following exposition of the facts, as distinguished from official dicta, or in the comment necessary to give an understanding of the true inwardness of the official answers.

Practice and Experiment.

As regards the answer to (*a*), it is a difficult point to decide where experimenting ends and where manufacturing begins. It is understood that there is considerable difference between the biplanes numbered B.E.1, B.E.2, B.E.3, and B.E.4, the first being like B.E.2, but with a Wolseley instead of a Renault engine, B.E.3 having a Gnome and a different fuselage, and B.E.4 being built with staggered planes; but the differences are not so marked in B.E.5 and B.E.6.

It will be remembered, also, that the last four have been handed over to the Royal Flying Corps for regular use, and re-numbered 203, 204, 205, and 206, and are not used strictly for experimental purposes, as experiments are generally understood. It is further believed that other machines of similar type are being built in the Factory for delivery direct to the Flying Corps, though presumably these will also be classed as "experiments," and so do not contradict the reply to (*b*) that "no aeroplanes are under order for construction in the Factory."

Incidentally, as the question was not asked, Mr. Tennant made no reference to the number of men employed in the manufacture of envelopes and frames for dirigibles. Somehow one is reminded of the nigger minister who asked one of his flock, "How many chickens have yo' stole dis week, Rastus?" "None, minister, I declar'," was the reply. "And how many turkeys have yo' stole?" "None o' dem neither, minister." "Ah! mighty glad to see yo' improvin' in yo' moral character, Rastus." And as the minister walked away Rastus remarked *sotto voce*, "Golly! warn't it lucky he didn't say nothin' 'bout ducks?" One always has the feeling that, if the inquiring M.P. had gone one step further in his question, he might have attained his object.

Turning now to (*b*), one finds that thirteen machines of the B.E.2 type are on order from private firms. This fact was announced in The Aeroplane many weeks ago, and as none of these have yet been delivered by the three firms from whom they have been ordered, it is doubtless considered reasonable that no machines of any other type should be ordered from any other firms, albeit it must be recognised that the B.E.2 type is already quite obsolete, because the pilot and passenger are inadequately protected, considering that these are tractor-screw machines, and because the observer has not enough range of vision, according to the present standard exacted by the Royal Flying Corps.

On the question of orders for parts, if Mr. Joynson Hicks had asked whether it was intended to order parts instead of complete machines from private manufacturers, he might have forced a more enlightening reply, for certainly no parts have been ordered—yet. But, to adopt the formula of Mr. Asquith, "Wait and see."

Effective or Efficient.

In question (*c*) it looks as if a tactical error had been made in using the word "effective." Anything that flies may be regarded as an effective aeroplane, but for war purposes only a highly efficient aeroplane can be permissible if our Army pilots are not to be murdered by official neglect.

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It will be remembered that on September 19 the present writer estimated that the Royal Flying Corps possessed thirty-two machines fit for use in time of war, which is not very far from the official figure given a month later when several new machines had been added, but at the time he said that "very few of them would be fast enough to stand much chance against an army equipped with a fleet of fast and powerful monoplanes, or the speediest possible biplanes." That remark still holds. It may be noted that Mr. Tennant speaks of the British Army. Presumably those who manufactured his answer included machines belonging to the Naval wing as well.

Further, it is of interest to note that a group of flying officers who discussed Mr. Tennant's reply a day or so after it was given calculated the number of aeroplanes in possession of the Royal Flying Corps and fit for use in war as eleven. These included some comparatively slow machines, so they were not simply reckoning the highly efficient aeroplanes. The difference between the official thirty-six and the actual eleven is accounted for partly by recent wrecks, and partly by the difference between the military and civilian idea of an effective aeroplane.

It will be seen that Mr. Tennant says that nineteen of our thirty-six machines are of English manufacture, giving the impression that we have bought only seventeen foreign machines. He omits to mention that five at least of the nineteen were built in the Royal Aircraft Factory, and that most of the remaining fourteen which were bought from English firms are absolutely obsolete. As a matter of fact one cannot trace more than seven British built aeroplanes fit for use in war, even including those delivered since Mr. Tennant's answer was composed.

One is also inclined to ask, presuming the B.E.3 to B.E.6 types to be improvements on B.E.2, why orders for some of these types have not been given to firms who are known to make serviceable aeroplanes, but who have no Government orders in hand at the moment, or who have only orders for one or two machines.

British and Foreign Air Power.

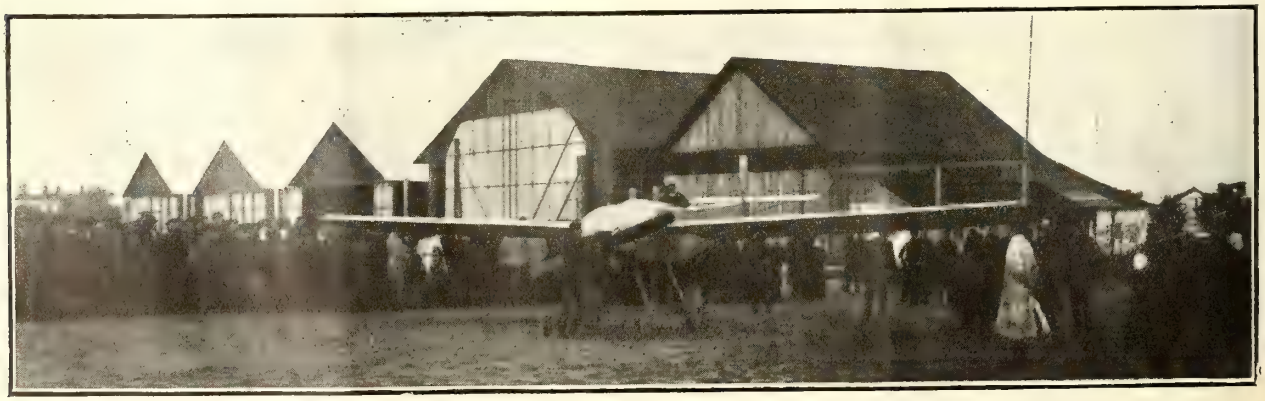
The answer to question (*d*), of which Mr. Tennant requires notice, may be put into the single, if unparliamentary word, "rottenly." At a rough estimate, and leaving out machines which are merely effective and not efficient, France must have by now a couple of hundred warplanes, and Germany approximately a hundred; Italy and Austria have each somewhere between fifty and a hundred; and Russia possibly forty or so, though when one takes in school machines and all, as Mr. Tennant does, these figures may be doubled or trebled.

Question (*e*) may be passed over, but (*f*) is worth close attention, the answer being the most misleading of all. Certain papers in referring to the subject have assumed that we have to-day either 123 or 97 army aviators ready for the next war, and such an assumption is justified by Mr. Tennant's answer. As a matter of fact if those figures are divided by ten one arrives very much nearer the truth.

No one has a greater admiration for the ability of our Army pilots than the writer, and it is undisputed that some of them are as good as the best professional aviators, but to pretend that we have 97 pilots ready for use as air scouts is pure nonsense. How Mr. Tennant's figures were obtained is something of a mystery. If one turns to the Army List one finds twenty-two regular officers who hold ordinary pilots' certificates. Of these six or seven have done no cross-country flying whatever, and of the rest only ten or eleven have ever flown anywhere except between Salisbury Plain and Farnborough, so it is hard to see where Mr. Tennant's twenty-three "efficient military pilots" come from. Even if one includes the reserve and special reserve, the number is only increased by three.

Also, it would be interesting to have an explanation of the discrepancy between the 123 officers mentioned in the first part of the reply and the 91 officer-pilots shown in the second part. Surely there cannot be as yet thirty-two officers belonging to the Flying Corps who are employed purely on administrative work. No mention is made of the Special Reserve, but presumably the nine civilian aviators shown in the Army List as being on probation, are included to swell the total for purposes of "window-dressing." If so, it may be well to point out that by no means all of them are efficient ordinary pilots.

Taking it all round the answer appears to be carefully calculated to give an entirely erroneous impression. Mr. Tennant is in no way responsible for this, as he has to take the figures as given to him. But it is all for the good of the country that it should be known that we have not to-day more than a dozen or so Army aviators who are at once trained soldiers and experienced cross-country fliers. No



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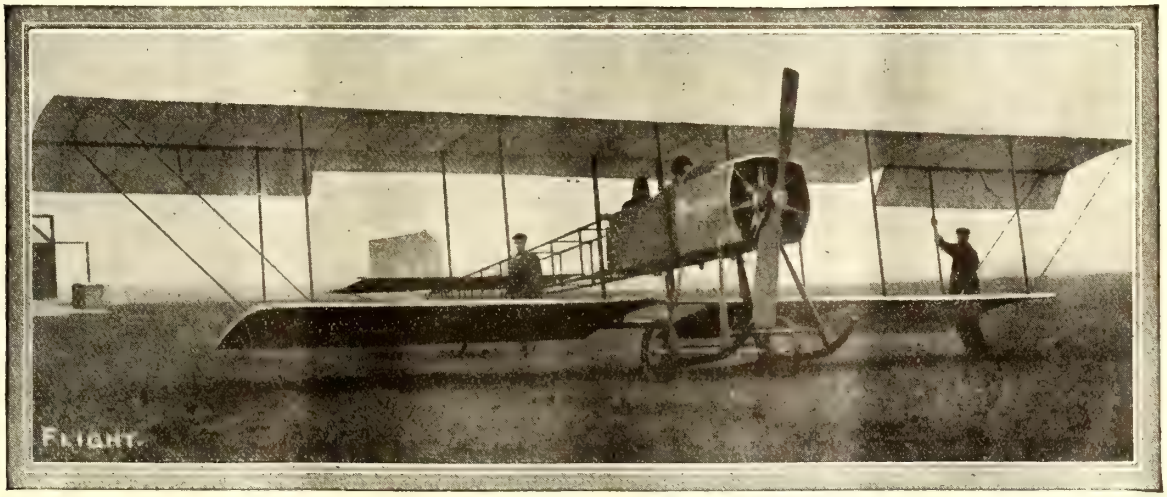
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good purpose can be served by "putting up a bluff" to foreign powers on such a subject.

Fortunately many of the soldiers now in training at the Central Flying School give promise of being extremely fine fliers, as do the probationers of the Special Reserve. It is even more satisfactory to know that the school is being run in a relentlessly efficient manner worthy of the British Navy and Army, and that those pilots who, in spite of possessing Royal Aero Club certificates, do not show promise of being real fliers, are being gently but firmly removed without fear or favour. This knowledge at any rate gives a cheering prospect of ultimate high efficiency in the Royal Flying Corps, if it is adequately supplied with efficient machines.

The Government Policy.

Passing over question (*g*) and coming to (*h*) we find, under cover of the old debate on the relative merits of monoplanes and biplanes, a direct challenge as to the future policy of the Government, and a direct reply. Nothing could be more definite than the statement that "The Army Council does not propose, at the present stage, to decide upon any particular type for exclusive use."

If that announcement had been made in the form of a memorandum from the War Office direct to British manufacturers, it would be the best possible incentive to private firms to go on experimenting on their own lines, and to produce improved types of machines. But, without in the least casting any slur on Mr. Tennant's personal honour, one cannot attach the same importance to a statement made by a political official in answer to a question in the House, especially when the previous replies with which he has been supplied seem to imply statements so widely divergent from facts as some of those already quoted.

What is required, if a healthy industry is to be established in this country so that we can rely on an adequate supply of warplanes in time of need, is a definite announcement from the War Office that any aeroplane passing certain declared tests of speed for power, lifting capacity in relation to power, fuel capacity, theoretical and practical strength of parts, facility of observation, comfort of pilot and observer, safety of both in event of a moderately severe accident, quick starting and quick stopping, will be purchased at a fixed price. The price should be proportionate either to the power of engine fitted, or to the live load of pilot, passengers, and armament carried. In this way new and improved types would be evolved by private makers, who at present have no encouragement to experiment as they have no certainty of orders if they do produce improvements. Such an announcement should come from the War Office itself, for we who are concerned in the aeroplane industry have but little faith in political utterances capable of two or more interpretations. What we need is the brief, business-like declaration of a soldier.

As to Engines.

While on this subject of future supplies, is it not time that someone raised the question of British engines? British-built aeroplanes are of little use if there are no British engines to drive them.

It is no use pretending any longer that British engines will not run as well and give as much power as foreign engines. The experiences of Messrs. Cody, Ogilvie, Roe, and Sopwith, all prove the excellence of British engines. Mr. Cody's Military Competition £5,000 prize-winner is as fast with a British engine as with a foreign engine. Mr. Ogilvie has flown more miles without adjusting his British engine than any but a few have done with foreign engines. Mr. Raynham's non-stop flight of 7 hours 31 minutes last week with an engine which had already done many weeks' work, including going through the Military Competition, without being taken to pieces, shows that we can obtain durability. Also Mr. Hawker's non-stop flight of 8 hours 23 minutes on the same day with an engine which then completed 18 hours' flying in a week proves that our choice is not confined to one or two makes only.

What excuse, then, can be found for refusing to use British engines? And what is the real reason for the barring of British engines in view of the fact that one knows of certain officials professing to certain makers that they have recommended the purchase of their engines by the Government, and one hears from reliable and uninterested third parties that the same officials have soon afterwards damned those same engines in a most unqualified manner in their presence?

It would be interesting if some Member of Parliament with the good of our aerial defence force at heart, would ask the Secretary of State for War how many British and how many foreign engines are used by the military wing of the Royal Flying Corps and by the Central Flying School; how many foreign engines have during the past two months been put out of action for periods exceeding a day by internal breakages in the engines themselves of machines stationed at Farnborough, Lark Hill, and Upavon; and whether in view of recent good performances by British engines it is intended to supply machines with those engines to the Royal Flying Corps to see how they behave in the hands of the ordinary air-mechanics of the corps, and away from the expert engine tuners of the Royal Aircraft Factory? And, to quote Lord Tullibardine, "if not, why not?"

It would also be interesting to inquire the mileage flown, or—as a more certain measure—the hours spent in the air and the petrol and oil consumed by each type of engine between breakages, or taking to pieces for overhaul. If these figures were obtained one could form some comparison of the respective merits of British and foreign engines.

"Ingenuus Puer."

How little poor Mr. Tennant knows of his subject, and yet how ingenuous he is when unprompted by official documents, is demonstrated by his replies to questions (*j*) and (*k*), for he apparently imagines that British makers have built thirty-six of the Army's machines, exclusive of monoplanes, though in answering (*c*) he had shown that seventeen at least of the alleged "effectives" were foreign built, and should have been able to infer that monoplanes must have been included to produce the fancy figure of thirty-six. Obviously, the fact mentioned in the answer to (*h*) that "monoplanes will not be used in the military wing until the Committee has reported," need not prevent monoplanes from being counted as "effective" when the maximum figure is required for political purposes. The simple honesty of his personal replies makes one despair of Mr. Tennant's future as a politician.

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"As Soon as Possible."

The reply to (*i*) that "there must be considerable experiments" before a decision is made as to whether monoplanes are to be used in future, is not comforting, though it would be rational enough if those who are to carry out the experiments would announce to the aeroplane makers and to the technical Press the experiments they propose to make and how they are to be carried out. As the matter stands it might mean that a couple of obsolete French monoplanes are to be tested to destruction with a simple overload of sand, but without tractive strain on the wings. Or it might mean that we must wait till the Royal Aircraft Factory has produced half a dozen B.D.H.E. (Blériot, Deperdussin, Hanriot, Experimental) type monoplanes for "experiment" by officers of the Royal Flying Corps, afterwards numbering them 601, 602, 603, 604, 606, so as to astonish foreign spies at the numerical enormities of our air fleet—somewhat as the B.E. (Bréguet, Experimental) type are now flying as "experiments," and are numbered 201 and upwards. Both methods have much to recommend them to those who are not convinced that the ultimate welfare of British manufacturers is the best guarantee of an adequate aerial defence force.

However, let us hope that Mr. Joynson Hicks and his supporters will continue their series of awkward questions, for in this way truth will out in time, and then an improvement may set in.

The Michelin Duration Prize.

Although nobody saw fit seriously to dispute Mr. Cody's possession of the Michelin Cross-Country Prize, there has been quite keen competition for the Michelin Duration Prize during the past week, and some splendid flights have been done, all of which have been passed over by the daily Press practically without notice, though a year or so ago any of them would have created quite a sensation.

Mr. F. P. Raynham, who, of course, is recognised as one of our best pilots, made two capital attempts on the totally enclosed Avro which Lieut. Parke, R.N., flew so well in the Military Competition, and which Mr. Raynham himself has since flown from Salisbury to Shoreham, and from Shoreham to Brooklands. His first attempt was on October 22nd, when he flew for 3 hrs. 48 mins., and was brought down by a defective water joint.

His second attempt was on the 24th, when he started at daybreak and flew for 7 hrs. 31½ mins., being brought down then by lack of lubricating oil. When it is remembered that this Avro flies at something like 60 miles an hour, it is obvious that Mr. Raynham must have covered something like 450 miles during the flight, and it is a great pity that he did not have a regular marked course, so that he could have claimed the long-distance record, which he undoubtedly holds in fact. This fine flight is only another confirmation of the fact that a British engine when properly looked after is capable of giving as great satisfaction as any foreign engine, for the 60 h.p. Green ran absolutely perfectly throughout.

At the time of writing the probable winner seems to be the young Australian, Mr. Harry G. Hawker, recently a pupil at the Sopwith School, and now probably as good a pilot as any in this country or elsewhere. Mr. Hawker made four tries on the 40 A.B.C. Sopwith biplane. On October 16 he flew for 3 hrs. 31 mins., and was brought down by trouble with a valve spring. On the 21st he flew for 2 hrs. 40 mins., and was simply blown to a standstill. He went up to 2,000 feet to try and get out of the gusts, but he was thrown up and down 200 feet at a time, and found it would be impossible to stand the physical strain for the eight or nine hours needed to win, though the performance shows the strength of the Sopwith machine. On the 22nd he flew for 3 hrs. and 30 mins., and was brought down by rain short circuiting the magneto. His great flight was made on October 24th, when he flew for 8 hours 23 minutes. The start was made at approximately 9.15 a.m., with thirty-two gallon of petrol on board and seven gallons of oil, the petrol being "Shell" and the oil Wakefield's Castrol, "R" brand. It was originally intended to start at sunrise, but for a considerable time the magneto could not be made to spark regularly. A new British-made magneto had been ordered as a safeguard, and this was hurriedly fitted, the A.B.C. Engine Co. altering the magneto to suit, and the start made at the time mentioned. The conditions were particularly good, the wind averaging about four to nine miles per hour through the day. Except for the first quarter of an hour, until the engine was thoroughly warmed up, the load was lifted quite easily, and although the engine on full throttle runs at between 2,000 and 2,100 r.p.m. in the air, the machine was flying comfortably with the engine turning at about 1,800 r.p.m., and this was towards the end cut down to 1,400 r.p.m.

Nothing untoward happened during the whole of the flight, and Mr. H. Hawker said afterwards that the engine never gave him a moment's trouble, and he is certain that not a single misfire occurred from start to finish. Mr. Granville Bradshaw, of the A.B.C. Company, inspected the engine carefully at the conclusion of the flight and found everything in splendid order, the coolness of the crank-case and cylinders being particularly noticeable. The descent was made completely in the dark, and six minutes before the specified limit of one hour after sunset. On examining the fuel next morning it was found that there was still 7⅓ gallons of petrol in the tanks, and sufficient oil on board practically to duplicate the performance, and the only regret now is that the start was not made exactly at sunrise, when the whole of the time permissible under the rules of the competition would no doubt have been flown. The machine has been kept constantly in readiness for another attempt in the event of anyone improving on the time already put up. The whole performance is splendid testimony to Mr. Sopwith's ability to build a really efficient machine and to Mr. Sigrist's ability to build a really efficient machine and to Mr. Hawker and the 40-h.p. A.B.C.



Mr. Harry G. Hawker, the British Record-breaker.

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BY W. E. de B. WHITTAKER.

A few months ago the whole art of aerial reconnaissance was one almost of pure theory so far as the British Army was concerned. We had an excellent nucleus flying corps in the aeroplane company Air Battalion, but such pilots and machines as we had were used for the purpose of gaining experience of the first principles of flying. On the few occasions on which an aeroplane made its appearance in manœuvres it was either as an advertisement for a certain make of aeroplane or a weak attempt to prove that wood, steel and fabric wrought together in strange ways could fly. Few pilots ever took the trouble to write notes whilst in the air, and the average passenger was so occupied in adjusting himself to the new conditions that he too gained no practice in the making of reports. This year, as the world knows, Great Britain has awakened to the need of a flying corps, and as is usual in a country of slow thought, is now endeavouring to make up for past neglect in a wild rush of work. The organisation that should have taken three years to form is sprung on to the nation in a few brief weeks. Glowing speeches of the figureheads, heart-breaking work on the part of the subordinates takes the place of ordinary preparedness, and the incipient flying corps suffers from congestion. In the general haste many things have been overlooked. Sailors, soldiers, and civilians are huddled together into one heterogeneous corps, each with his particular knowledge and ignorance. Yet no composite instructions have apparently been issued. Aviation in its present military sense exists for observation purposes. Yet each observer is sent into the air with instructions to acquire information how and when he will. His own judgment is his sole law, and native ingenuity takes the place of ordered system. He may return with an admirable and lengthy disquisition on the social habits of cows in the county of Bucks or he may submit a terse but vital report of the movement of troops. So far as printed instructions go either might be of value.

No two men are alike in thought. Each has his idiosyncrasies. The quality of imagination and truth varies greatly. It is not given to all to write lucidly and fluently. In fact, experience teaches that the man of greatest value in the affairs of life is almost invariably incapable of any literary effort. He is not a fount of words. One cannot help preferring the man who does to the man who writes. The time for self-created literature is second childhood. This being so there should be some official guide as to the nature and form of reports. Even supposing each observer to be equal intellectually without system their reports would vary to an extraordinary degree. Again, an ordered arrangement simplifies the duties of responsible staff officers. Such officers have not in such circumstances to translate each individual report into a common code. If the arrangement is the same then the items of information can be looked for in the right place without inspecting the entire report.

In the case of land reconnaissance it is carefully laid down in various text books, official and semi-official, in what manner and order a report should be made. After even a limited experience of such tabulation the arrangement of information becomes simple. Further, it aids the scout in suggesting to him details that may be required. If he notes everything in correct order, *i.e.*, place, distance in miles, details of road, remarks, and so on, any omission can be noted at once.

I have seen several reports submitted by aerial observers during the late manœuvres; in fact, several have been published in the public prints. Most, while excellent in their way, give the minimum of information for the maximum of effort, and no two agree in superficial form. A pre-arranged order would have altered this.

It is not so easy as it appears to write whilst in the air, and therefore it is essential that the amount necessary shall be cut down as low as possible. Time, direction, and height are important in relation to each statement made, and position should be noted at intervals of five minutes, even though no remarks can be made. The omission of remarks is sufficient evidence in itself of an empty country. To modify the French system a useful report could read as follows. The number and scale of the map used should be noted :—

12.30 a.m.—Left Hendon, 2,000 *feet. Flying* N. Ground mist. Occasional glimpses of land.

12.38.—2,200 *feet. Flying* N. Over South Mimms. Air bumpy. No mist.

12.50.—2,500 *feet. Flying* N. Over Hatfield. Sighted infantry (brigade) on Welwyn-Hatfield road over "L" in Lemsfordmills [the order of the towns indicates the direction in which troops are marching]. To E., in direction of Hertford, apparently at Cole Green strong body cavalry and artillery. Not less brigade, cavalry, and 16 guns.

12.53.—2,500 *feet.* Altered course due W. Cavalry patrols at intervals along Hatfield-St. Albans road. Troops of all arms in distance from Luton. Not less than two divisions. [The italicised words do not appear in the actual report.]

And so on. Such a report as the above presupposes manœuvres conditions when the opposition aeroplanes can do no real harm and one is merely put out of action by the waving of a flag.

It is essential that the nature of the troops shall be specified and that a figure shall be given saying approximately their number in the form of "not less" than or "not more" than. To indicate troops without stating their numbers or nature in any way destroys to a large extent the value of the information. In countries where accurate maps are not available some indication of the topographical conditions prevailing is essential.

In the making of reports by wireless telegraphy the same order should be observed, though much greater detail can be given. Details which appear unimportant at the moment are often of great consequence later.

The object with which the reconnaissance is made should never be out of mind. In strategic scouting a great deal more will be observed than is perhaps required under the orders issued, yet it would be foolish to ignore such information.

A Sheerness Mystery.

There is a persistent rumour in Sheerness that one night recently an aircraft of some sort was heard flying over the town. In view of the recent long flights made by the various Zeppelin airships about that time, one of them lasting for thirty-one hours, the general opinion seems to be that the mysterious visitor was a German. There is, however, also an idea that the nocturnal aircraft may have been one of the naval aviators from Eastchurch practising night flying. Considering that the machine, whatever it may have been, was heard at 8 p.m. on a very dark night when there was some rain falling, the latter hypothesis is either altogether wrong or else it shows great daring on the part of one or other of the naval aviators, though for that very reason it becomes a possibility.

Italy to Corsica.

Though the daily papers seem to have missed the news, one learns from Mr. T. S. Harvey that Nino Cagliani, who flew the first Hanriot in Italy at the famous Milan Meeting, has succeeded in getting from the mainland of Italy to Corsica on an Antoni monoplane. The feat is distinctly a feather in the cap of the Italian firm.

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GREAT BRITAIN.

From the "London Gazette," October 26th.—War Office: Regular Forces Establishments; Royal Flying Corps, Central Flying School—Brevet Maj. Hugh M. Trenchard, D.S.O., Royal Scots Fusiliers, to be an Instructor (graded Squadron Commander), vice Capt. E. B. Loraine, deceased, and to be seconded, October 1st, 1912.

FRANCE.

It has been decided to found a military aerodrome at Poitiers.—W.

GERMANY.

The Ministry of War has offered a prize at a competition of photographs taken from aeroplanes and balloons.—W.

Six non-commissioned officers of the Prussian Army have passed their brevet tests at Leipzig-Lindenthal, where four privates of the Bavarian War Department have also received their brevets. None of the ten is to be employed in scouting at present, but will be reserved for orderly work.

Fatality follows fatality in Germany of late. The South German Circuit, which, despite fogs and storms, had gone merrily until Ulm, was overcast on October 19th by an accident that cost Lieutenant Beissbarth and his passenger, Lieutenant Lang, their lives. Ascending at Ulm for the final stage of 130 kilometres to Munich, Lieutenant Beissbarth flew for an hour and then had to land; he filled up his tank and continued, but later on motor defects forced him to earth again. After repairing and starting again, the aeroplane side-slipped whilst turning in a gust of wind and came down, killing both men on the spot. Lieutenant Beissbarth belonged to the 7th Bavarian Light Cavalry, and Lieutenant Lang to the 13th Bavarian Infantry.

Germany was horror-stricken to learn that while testing a new balloon, Herr Hans Gericke, defender of the Gordon-Bennett Balloon Trophy, and his companion, Lieut. Stieler, were killed thirty miles from Bitterfelde. Although no aviator, Herr Gericke was widely known, and had been third, second and first in the Gordon-Bennett balloon races since 1909, when he gained his brevet. His companion, Lieut. Stieler, was an aviator stationed at Doeberitz, and had joined Gericke to study air conditions at high altitudes. It is a most curious coincidence that in both these fatalities the passengers belonged to regiments bearing the number "13," as Lieut. Stieler belonged to the 13th Foot Artillery Regiment.

On October 20th, the last stage of the South German Circuit brought several smashes, fortunately without any injuries to the pilots. Herr Hirth reached Munich in 51 minutes, Lieutenant Hailer, with Lieutenant Palmer on board, was second in 59 minutes. The banquet to celebrate the finish was cancelled owing to the death of the two officers. The prizes were distributed by Prince George of Bavaria. In the military section the first prize was won by Lieutenant Vierling (Otto biplane, 100-h.p. Argus motor). The second prize went to Lieutenant Hailer on a similar biplane, and the third to Lieutenant von Buttlar (Albatros biplane, 85-h.p. N.A.G. motor). The first monoplane, a 100-h.p. Argus-motored Rumpler-Taube, piloted by Lieutenant Joly, was fourth.

In the civilian section Hirth topped the list with his Rumpler monoplane, fitted with a 95-h.p. Mercédés motor. Besides winning £625 in cash, he was presented with the prize given by the Prince Regent of Bavaria, and his passenger, Lieutenant Gravenstein, was given the prize of the Royal Bavarian Automobile Club. Bayerlein, on a 100-h.p. Argus Otto biplane, was second, Lindpaintner, also on an Otto, third.

AUSTRIA.

The Rothschilds of Vienna have given 100,000 crowns towards the purchase of military aeroplanes, an example which has been followed by the brothers Guttmann, who have given a similar sum.—W.

ITALY.

The national committee controlling the expenditure of the 2,000,000 lire subscribed for aviation purposes have reserved two-thirds of the sum to Italian constructors. It has also ordered twenty-eight Bristol monoplanes of the latest type. There is some astonishment in this country at so large an order being given to a foreign firm.

It has been decided to hold a military aviation competition in the month of April next. This will be in the form of a circuit of Turin, Milan, and Aviano, with a height and speed contest in addition.

Three Blériot monoplanes were received for the Army on October 22nd at Miraflori. M. Blériot was present at the reception.

There are at the military aerodrome of Aviano thirty Blériot monoplanes, ranging from a 25-h.p. Anzani Blériot to a 70-h.p. Gnome two-seater. Lieutenant-aviator Kerbacher is in command.—W.

RUSSIA.

The Military Flying Corps is to be entirely reorganised and is to be placed under the command of an engineer-general. Four new centres are to be formed, each with one escadrille (six aeroplanes) or more. Each port in the Baltic and the Black Sea will have its squadron of hydro-aeroplanes.—W.

PORTUGAL.

Mr. W. H. Sayers writes from Lisbon that an engineer-officer of the Portuguese Navy has been definitely appointed to take charge of the Government aviation establishment, and that probably three officers and half a dozen mechanics will be sent to England for education in aviation. A proper flying ground is to be prepared and school machines ordered. Mr. Sayers himself is stopping in Portugal as chief mechanic of the school, in which capacity one is sure that his ability, not merely as a mechanic but as a scientific student of aviation, will be of very great value to his new employers. Mr. Sayers further says that there are several possible flying grounds quite close to Lisbon, which are ideal for water and quite good for land machines. Pending the fixing up of one of these grounds, the Avro, after being cleaned up from its salt-water bath, is being greased and put away, as it is no good trying to keep it during the winter in a temporary shed, so that we are unlikely to hear much more about its flying for a month or two

There is also at Belem a steel-built Voisin water machine, which will be taken over by the Government as soon as it has flown satisfactorily, and a Deperdussin, presented by a Brazilian, is expected to arrive shortly.

The Avro biplane has been officially accepted by the Portuguese Government, and has been called the "Republica," the name being printed on both sides of the body in red, and underneath the wings in green—the Republican colours. A Republican flag has also been attached to each of the two outside struts.

GREECE.

The Greek Government placed an order by telegraph for five aeroplanes with the Aviatik Company at Mulhouse last week.

BULGARIA.

Lieutenant Milkoff, who left Berlin-Johannisthal last week for Bulgaria, has been able to secure valuable information concerning the Turkish position at Adrianople, whither he flew on an Albatros biplane from Mustafa Pasha.

ROUMANIA.

The National Aviation Committee, under the presidency of Prince Bibesco, have placed orders for two Maurice Farman biplanes. The Marquis de Lareinty Tholozan has recently done a considerable amount of flying in Roumania on this type of machine.—W.

SERVIA.

On October 22nd, at Buc, Lieutenants Yougovitch and Petrovitch, of the Servian Army, accepted delivery of two Henry Farman biplanes (Gnome engines).—W.

Continental Notes.

An aviator named Alexander Takacs was flying over the Rakos camp, near Budapest, on October 14th, when he fell from a height of 150 ft. and was killed.

M. Cobioni, an Italian aviator, and his passenger, M. Peppert, fell from a height of 60 ft. while flying at La Chaux-de-Fond on October 15th. Both were killed.

The Circuit Forezien, over a course of which the turning point were Bouthéon, Balbigny, Boen, and Bouthéon, took place on October 20th, and was won by Molla on a Rep monoplane (80-h.p. Gnome).

M. Amedee Lacour was killed on October 20th when flying at Mussidan in the Dordogne. No particulars as to the cause are available.

"La Vie au Grand Air" publishes an extraordinary picture of the fatal accident to M. Blanc at Mourmelon on Oct. 17th, showing the machine falling vertically, with pieces of the broken wing trailing behind. A photograph also shows him starting for his last flight, the machine being an Antoinette monoplane of recent type. It is peculiar that of the five pilots killed on Antoinettes, four—Wachter, Lafont, de Robillard-Cosnac, and Blanc—have been killed by the collapse of wings. The fifth, Michelin, was killed after landing by a pylon falling on him.

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Three Tractor Biplanes.

Last week I described some personal experiences as a passenger on three propeller-driven biplanes with the engine situated behind the pilot and passenger. That one has personal predilections in favour of this type of machine is looked on as a regrettable form of imbecility by some and as a saving sign of grace by others. There is no happy medium. The two camps of opinion cannot dwell in reasoned amity. A certain contemptuous scorn on both sides makes a very inadequate substitute for placid argument. But questions of vital importance have ever this strong feeling

Latterly, I have made several flights as passenger on tractor biplanes of high excellence. Some months ago—towards the beginning of the Hendon season—I accompanied M. Moineau on the 100-h.p. Gnome-engined Bréguet biplane. The controls on this machine are of the original Bréguet type, and consist of a single lever surmounted by a vertical steering wheel. A sideway movement of the column actuates the wing warp; a backward or forward movement controls longitudinal stability, and rotation of the wheel operates the rudder. The 100-h.p. Gnome drives the propeller through a reduction gear.

The wind was moderate and the day dull. We rose to a height of six hundred feet in a single circuit steadily and unnoticeably. My seat was not fastened down, and I had much to do in preventing sliding backwards into the control column. Between my feet was the Gnome carburettor, which made me think for a few minutes of being *carbonisé*, as it is tersely put over the Channel. Actually, had a back-fire ignited the loose contents of the carburettor, there was nothing in the neighbourhood which could have burnt—thanks to the steel construction of the Bréguet. The propeller gears shrieked consistently like the cries of a damned soul in hell.

Over the northern end of the ground we collected the remous that wait for the idle pilot. We rocked laterally several times with slow and spongy movement, but, curiously, we did not rise to any gust. Differing from any other type of aeroplane in which I have flown, the Bréguet, like an early ironclad, ploughs steadily through an upward gust rather than rise to it. The heavenward rush of air can at such times be distinctly felt if one leans over the side of the fuselage.

I watched M. Moineau pilot the machine. His fame as an aviator was sufficient to make it of great interest. Every movement was made slowly, and was responded to as slowly. From time to time the control lever touched the side of the fuselage and was held there for some seconds. The biplane was never allowed to rock very far, but the amount of work done appeared to be considerable. Longitudinally, her position never varied.

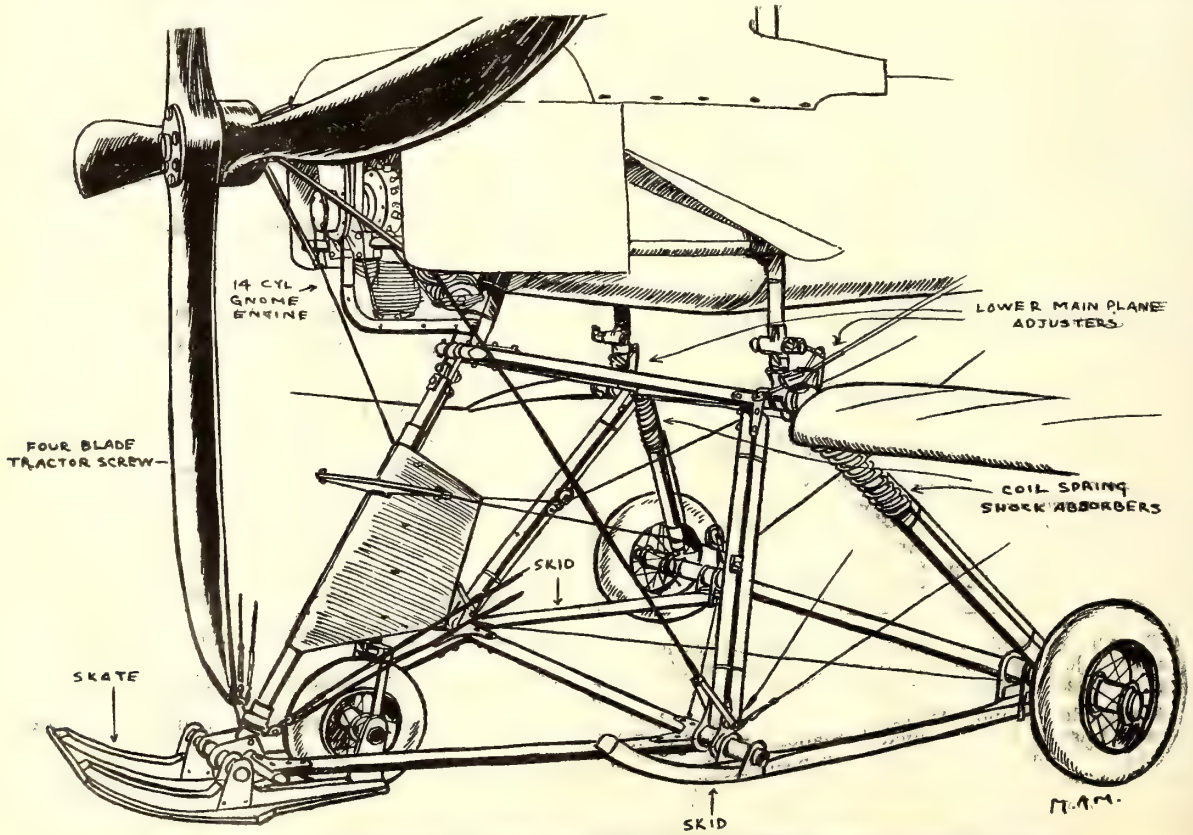
It was uncanny to watch the rippling of the wings as the gusts struck them. The feeling of sitting on a well-set jelly was intensified, especially if one watched the curious sympathetic wobbling of the tail.

We descended finally in a steeply-banked spiral vol plané, during which one thought the earth had become seriously warped, and that we alone of all humanity retained equilibrium. The landing was gentle and unnoticeable, and the calm, following the cessation of shrieking gears was almost painful.

On the Thursday of last week I again took the air in a Bréguet biplane, this time on one of the latest type, fitted with a 110-h.p. Canton-Unné radial engine. In addition to the ordinary controls, two pedals are fitted for foot-warping. On this occasion the pilot was Mr. W. B. R. Moorhouse, who is himself in the first rank of aviators.

The experience was totally different. I did not slip about as, owing to the absence of a seat, I sat on slightly roughened floor-boards. There were no uncomfortable pieces of engines projecting in all sorts of odd places and leaking petrol and oil. The two radiators in front made one quite warm, and the cowl being devoid of the cracks of antiquity, was a real protection, rather than a collecting agent for odd draughts. We rose, as on the early model, rapidly and imperceptibly to about six hundred feet, at which height we made several circuits of the aerodrome, banking sufficiently heavily at the turns to bring back to me vivid memories of my own experience in acquiring the gentle art of the deadly side-slip. Naturally, we were far from a side-slip, but a passenger is invariably a pessimist.

The speed of this machine is considerable, and is surprising to anyone who has just before flown on the bête noir of Mr. Grey—an antique "box-kite." On our first circuit we passed over an old-type biplane apparently in the hands of a pupil



Details of the Bréguet Chassis, as fitted with a 100-h.p. geared-down Gnome.

desiring to hover. Actually, we found later that that biplane was flying faster than usual at that moment. The angle of view and our own speed misled us.

The amount of energy expended in piloting appeared to be negligible. The slightest movement of the controls was responded to immediately. This biplane was less spongy than the older type, and represents a great advance. The feeling of entire confidence is surprising.

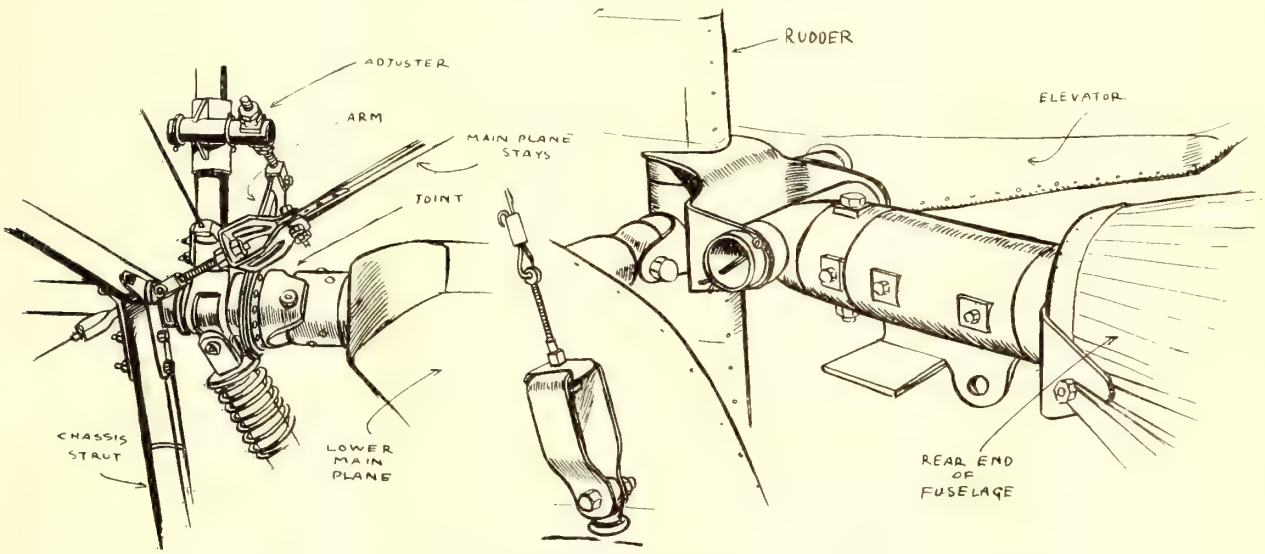
We landed across the ground at a very high speed but without a jolt. There are few machines more comfortable in the air and on the ground.

The following day I flew at Brooklands with Mr. Sopwith on his tractor biplane. This machine, which has been designed and built entirely in Mr. Sopwith's sheds at Brooklands, has planes of the Wright type and is driven by a 70-h.p. Gnome engine. The controls are of the Blériot type. There is room for two passengers in a roomy compartment in front of the pilot. We rose rapidly and made two circuits of the aerodrome at a height of about fifty feet in order that certain photographs might be taken from the enclosure. Mr. Sopwith, aided by the Wright planes, banks more steeply in turning than any pilot I know, and yet without a trace of side-slip. On the first we made I held on, expecting to slide sideways as usual, but it was unnecessary, and until the flight ended I sat in the centre of the seat without troubling to hold on to anything. This shows that Mr. Sopwith banks to the exact degree required by the turn, neither more nor less. It was also noticeable that, in turning, the side draught was very slight. Very little movement of the controls sufficed to do what was required. The size of the rudders appears superficially to be too small, but when in the air the machine answers at once to the smallest rudder movement.

When over the track in the second circuit we rose suddenly at the angle habitually affected by M. Verrier. It was curious to note that, though the angle was abnormal, it felt quite natural and comfortable. Before we crossed the same place again we had risen to a height of a thousand feet.

Finally, when just outside the track in the direction of Byfleet, Mr. Sopwith stopped the engine and we started to glide slowly towards the sheds. When over the river we had to dive steeply to avoid a Hanriot monoplane buzzing angrily towards us. Yet, steep though the angle, our speed was never over the flying speed. One doubts if the use of a 100-h.p. engine would make the machine any faster. It is at present at the highest stage of efficiency for its purpose. The speed can be varied between 34 and 50 miles an hour. The complete absence of vibration in any part is a singular feature.

We landed with the propeller stationary outside the "Blue Bird," and thus ended one of the most pleasant flights I have had.—W. E. de B. W.



The adjustable wing attachment, wire holders, and tail joint of the Bréguet.

Motors at Olympia.

There are few people interested in aviation who are not also interested in motor cars, partly because the motor car engine is becoming more and more closely allied to the aeroplane engine, and partly because owing to the inaccessibility of the average aviation ground everyone connected with it uses when possible a car—bought, begged, borrowed or stolen—to get there. Consequently, the Olympia Show, which opens on November 8th, is of quite as much interest to readers of The Aeroplane as it is to readers of motor papers.

The exhibition opens on Friday, November 8th, until the Saturday week following, and the prices of admission are 1s., excepting Monday and Thursday, when it will be 2s. 6d. before 5 p.m. and 1s. after, and Tuesday 5s. before 5 p.m. and 2s. 6d. after. Members of the Royal Automobile Club will be granted free admission as heretofore on production of their membership card.

One gathers from Mr. C. D. Clayton, the enterprising Press Manager of the Show, that every available foot of space has been booked for this year, and will be used to greater advantage than hitherto through the voluntary relinquishing of a considerable portion of the space previously allotted to the large firms, so that there will be the record of 353 exhibitors.

A welcome change will be the grouping of the exhibits, the tyre firms for the first time being located on the ground floor, leaving the gallery entirely at the disposal of the accessories and parts makers.

The enormous number of small low priced cars which have been put on the market, largely as a result of the American invasion, will, of course, be of particular interest to those connected with aviation for whom the car is simply a means to an end, and not an end in itself, for the average aviator, though he needs a car as a means of locomotion, spends most of what money he has got on his actual flying—hence the popularity of the run-about among aviators.

It is interesting to note that two-stroke engines are making considerable advance among car manufacturers, and self-starters are to be shown on quite a large number of cars, for points of design connected with both these are of interest in connection with aero engines. The general tendency towards a well-balanced high speed engine is also of interest to those who really study engine design, as, of course, are improvements in carburettors and magnetos. Altogether the Show should not be missed by anybody who takes an intelligent interest in motors.

Paris Show Trips.

In connection with the International Aeronautical Exhibition at the Grand Palais special return tickets will be issued by the South-Eastern and Chatham Railways from London to Paris on Friday, November 8th, and Thursday, October 31st, by the under-mentioned services:—

Charing Cross	dep. 10.0 a.m.	2.20 p.m.	9.0 p.m.
Paris Nord	arr. 5.20 p.m.	11.25 p.m.	5.40 a.m.

The tickets are available to return any day up to and including the Monday following date of issue by the following services:—

Paris Nord	dep. 8.25 a.m.	2.30 p.m.	9.20 p.m.
Charing Cross	arr. 3.25 p.m.	10.45 p.m.	5.43 a.m.

And they will also be available by the 8.25 a.m. service on the Tuesday following the date of issue. The fares will be 58s. 4d. first, 37s. 6d. second, and 30s. third class.

It should be specially noted that to-day, Thursday, the special fares give an extra day in.

What to See at the Paris Show.

BY C. PHILLIPS VIERKE.

In most wretched weather, President Fallières on Saturday opened the "Fourth International Exhibition of Aerial Locomotion." As in former years, this year's salon is extremely interesting, and every enthusiast who pays a special visit to Paris to see it will be amply repaid for his trouble.

On entering, the first exhibit to catch the eye is that of the newly amalgamated firm of Bréguet and R.E.P. Here are two standard two-seater 80-h.p. Gnome-Bréguets, as exploited by Sappers Brégi and Moineau at the French Manœuvres. They are of the same type as built by the British Bréguet Company, which also shows a machine fitted with a 110-h.p. Salmson fixed motor. The fuselages of these machines are entirely encased in aluminium sheeting. The most notable R.E.P. exhibit is an extremely handsome looking hydro-monoplane, fitted with an 80-h.p. Gnome, as piloted by Molla at the Tamise meeting.

Behind the Bréguet-R.E.P. stand are the Blériot exhibits. The great pioneer of the monoplane has on view a new type of military tandem two-seater, labelled "Type 36." This machine, evidently built with the idea of reducing head resistance to a minimum, is fierce-looking in the extreme. The shape is exactly that of a torpedo. The motor is heavily armoured, and the chassis is a colossal steel construction. For the first time for several years M. Blériot has altered his conventional chassis, and, in addition to a new type of pneumatique shock absorbers, a central skid is fitted. The chassis is fitted with larger wheels than those commonly in use. The petrol tank is very neatly stowed away beneath the fuselage. The fin-shaped double rudders add to the grace of the machine, which looks capable of withstanding the most terrific smashes.

In the rear of the Blériot stand, still in the Central Hall, are the Nieuport machines, of which the most interesting is the hydro-aeroplane, 14-cylinder Gnome type, as adopted by the French Navy. The chief feature of interest in this machine is the size of the floats, which are of tremendous span, with "gills" at the head, and are attached to the fuselage by an intricate mass of steel rods. A small egg-shaped float is fitted beneath the tail.

A novelty in the Central Hall is the d'Artois stand, which includes a machine called the "Aero-Torpille," resembling an Avro, but with the propeller behind the tail. The same firm exhibits another biplane with the motor placed two inches from the pilot's back and driving a four-bladed propeller by a heavy chain immediately above his head. The design, as a prescription for the annihilation of the pilot in the event of an abrupt landing could scarcely be improved upon.

An Astra hydro-aeroplane, of the type successful at St. Malo, faces the left door of entrance. It is a beautiful piece of work, theoretically and practically.

Down the right-hand wing of the building the first stand is that of the Deperdussin firm, who show the machine on which Védrines won the Gordon-Bennett Cup with a speed of 170 kilometres an hour, and another 80-h.p. machine. The latter is a war plane, with the motor armoured, the shield revolving with the cylinders. The fuselage is torpedo-shaped.

A little further on is the exhibit of the Bristol Company, the latest monoplane designed by M. Coanda for the Military Competition. In the gallery another Bristol, of a less bellicose type, is on view.

On the other side of the aisle is a Donnet-Lévêque hydro-aeroplane, with an amphibious chassis. A pair of wheels, with efficient shock-absorbers are slid down beneath floats by the pilot turning a handle.

Just beyond this is a 1-P-1 type of machine, the "Tubavion," with aluminium wings, the whole being slung on a single steel boom meeting a curved skid in the front.

Mr. Sommer shows a biplane and a monoplane, neither of which have original features, except for an automatic stability device in the latter.

The Borel firm shows a hydro-aeroplane with two floats, and a war plane—torpedo shaped again—a form of fuselage which is evidently becoming standardised for military purposes.

Right at the farther end of the central hall are the Morane and Clément-Bayard stands. The exhibits of the first-named are the prettiest of the show. Planes and fuselage are painted green and lined with gold, a decoration which is said to render them almost invisible at a fair height even in a bright sky.

The Clément-Bayard, 1-2-P-2 biplane looks a most efficient flier. The top main plane is a big span, and the aspect ratio extremely small

The Caudron stand is in the left wing building. The rudder area has been considerably increased, the length of rudder above the tail plane being about double that below it.

The Cyrnoptère is shown in this part of the building. This is an experimental construction on helicoptère lines, a fixed 200-h.p. Clerget engine driving two huge horizontal Filippi propellers rotating in opposite directions. Several new types of Filippi "wing" are shown. The Cyrnoptère certainly looks the most business-like direct-lift machine yet constructed.

Messrs. Farman have on view a hydro-aeroplane at rest in its natural element, represented by a tiny pond. The machine is of the latest type, with monoplane tail and egg-shaped rudder. A Maurice Farman, of the type M. Verrier has made so popular in England, figures at the next stand.

Machines of all types, bought for the Army and the Navy by the National Aviation Fund, are placed in the Gallery, decorated with a red, white and blue target on each wing.

At the top of the main staircase a new naval acquisition, an "Aero-Hydroplane" called "La Marseillaise," towers above everything in the exhibition. It is of the P-1-1-1 type, and built by the Bréguet firm purely for water work. The motor is a 120-h.p. Salmson, with fixed horizontal cylinders, arranged in a circle.

The freaks of the show and comic relief are provided by the Aviettes, or cycloplanes. The famous apparatus on which Rettich the other day hopped a distance of 9ft. 10 in. at a height of four inches, is a great centre of interest. Two pieces of canvas, the size and shape of bladders used for swimming instruction, attached to each end of a rod fixed to the handle-bars of an ordinary bicycle, and you have the machine complete.

This very simple piece of mechanism compares rather ridiculously with the other Aviettes shown, which have *not* hopped. One has a most fantastic fan-shaped planes which extend all the way round the rider; another has the main planes attached to the saddle. One inventor fixes the aeroplane part of the apparatus on to a cuirass worn by the rider, whilst another idea is the substitution of a most weird flapping apparatus for the propeller. Some real ingenuity is shown, however, in different methods of gearing down the propeller.

Motor wagons and the method of packing aeroplane parts form interesting military exhibits, showing the thorough organisation underlying the work of the French aeronautic authorities.

Messrs. Goupy, Zodiac and Vinet all exhibit machines without new features.

The most interesting motor exhibits are provided by the Gnome, Salmson and Clerget. Gnomes are shown of 50, 70, and 80 h.p., with seven cylinders, and of 100, 140, and 160 h.p. with 14 cylinders. The last-named is a novelty. The Salmson motors have been coming to the front considerably of late. The firm have actually a 300-h.p. engine on view, which, after the show, is to be tried on a Bréguet. Clerget's have some interesting models, with fixed and rotating cylinders.

The "Daily Mail" has a stand, where an "Airmanship Expert" who really knows something about aviation may be of service to English visitors not knowing French. The visitor may be warned not to waste a franc on the Official Catalogue, which gives absolutely no information about the various exhibits, although it contains a full musical programme. This is the only fault it is possible to find with the official management, which is otherwise all that could be desired.

Mr. Cody's Lecture.

Mr. S. F. Cody's lecture at Caxton Hall on November 8 should on no account be missed. His subject will be "What the Nation Should Do To Stand First In Aviation," and it will be illustrated by exclusive animated pictures and lantern slides. The lecture will be in aid of funds for the equipment of the First War Kite Squadron (Territorial), and admission tickets will cost 5s., 2s., 1s., and 6d. They are obtainable from Mr. W. H. Akehurst, Hon. Sec., the Kite and Model Aeroplane Association, 27, Victory Road, Wimbledon.

The Week's Work.

MONDAY, October 21st.

R.F.C. (Central School):—Clear, westerly wind—bumpy. In evening very strong wind and wet. On Avro 406, Lieut. Shepherd 18 and 9 mins., Lieut. Cholmondeley 21 mins., Lieut. Anderson 15 mins., Capt. Risk 12 and 17 mins. to Lark Hill and back, Air Mechanic Higginbottom 5 mins. On Avro 404, Capt. Fulton with Air Mechanic Hodgson 20 mins. on practice ground, with Ldg. Seaman Bateman 25 mins. also on practice ground. On Maurice Farman 403, Master Mechanic T. O'Connor 15 mins., Lieut. Longmore, R.N., with Air Mechanic Taylor 7 mins, with Air Mechanic Langley 15 mins., Major Higgins 10 mins., Lieut. Lushington 33 mins.

R.F.C. (Farnborough).—Early, slight mist. On biplane 206, Major Burke, Capt. Darbyshire, Lieut. Longcroft, and Lieut. James, all long flights. On Bréguet 213, Lieut. Shephard. On Maurice Farman 214, Capt. Reynolds 10 mins. Mr. Sopwith left for Brooklands on Sopwith biplane with Lieut. Spencer Grey, R.N., as passenger. Capt. Raleigh with Lieut. Hetherington as passenger, returned from Colchester on 100-h.p. Gnome Bréguet at great altitude, making good time. In evening slight rain and mist. On Maurice Farman 207, Major Moss 10 mins., Lieut. Herbert 15 mins., then Major Moss 10 mins. with Air Mechanic Green as passenger. On Maurice Farman 214, Capt. Reynolds 15 mins., then 10 mins. with Air Mechanic Aspinall, then 20 mins. with Sergt. Mead. On Bréguet 213, Lieuts. Shephard, Wanklyn and Playfair. On biplane 206, Capt. Darbyshire, Lieuts. Longcroft and James, all doing good flying. Mr. de Havilland out on "B.E.2."

Eastchurch.—Early morning, the Bristol biplane with Capt. Gordon, R.M.L.I., and Private Edmunds, R.M.L.I., making flights. Mr. McLean on 70-h.p. Short Tractor biplane took up Miss Greg. Commander Samson, R.N., flying Short twin-engined monoplane. Forenoon: Biplane S.38. out; Lieut. Parke, R.N., flying with Carpenter Collins, R.N. Mr. Ogilvie on N.E.C. Wright. Afternoon: Lieut. Parke, R.N., again on S.38., doing circuits with Boatswain Bobbett, R.N. Captain Gordon, R.M.L.I., on S.34, with Carpenter Collins, R.N., for tuition. Bristol out with Capt. Gordon, R.M.L.I., and Electrician Deakin, R.N. Latter in landing considerably damaged chassis, propeller and right wing. The Short twin-engined monoplane again out with Commander Samson, R.N. Mr. McClean on 70-h.p. Short Tractor for thirty minutes.

Hendon.—At W. H. Ewen School, pupils were out at 6.30 a.m., when Mr. Sydney Pickles had the 35-h.p. Caudron out. After a test flight he handed the machine over to Mr. H. H. James, who then went for his certificate. He passed his tests in a confident and skilful manner, flying most of the time at an altitude of 200 feet, and on both occasions landing on the mark. Lieut. M. W. Noel making good progress in rolling. In the evening the pupils were again out under the instruction of M. Baumann on monoplanes Nos. 1 and 2. Mr. Lawford doing good straight flights at 20 ft., making nice landings. Lieut. M. W. Noel rolling on No. 1 monoplane, while Mr. R. S. McGregor received his first instruction on the same machine. Messrs. L. Russell and M. Zubiaga making good progress in straights. Messrs. W. Warren and H. Gist flying good straights and half circuits at 20 and 30 ft.

Grahame-White School started at 7 a.m. Good morning's work, two pupils passing for brevet. Lieut. F. G. Small on No. 5 Grahame-White at 180 to 200 feet on his first circuits, and landed within 10 yards of observers. His second test good eights at 80 to 100 feet, landing dead on mark. Commander M. Yeats-Brown doing tests about 200 ft. and landing well. Capt. Halahan on same machine at 9 a.m., good steady circuits. In evening Capt. Halahan figure eights on No. 5. Messrs. Francis and Clarke passenger flights with Instructor L. Turner.

At Bleriot School.—Messrs. Sacchi, Welburn, Gratien and Gandillon straights. In afternoon Messrs. Gandillon and Gratien straights, and M. Gratien a circuit at 50 ft.

At Jameson School.—Mr. Temple on Blériot.

At Blackburn School, Dr. Christie, Messrs. Lawrence Spink, Buss and Glew, all straights for 12 minutes each. In the evening Messrs. Lawrence Spink, Glew and Buss 10 minutes each and Dr. Christie 16 minutes, all on the 50-h.p. Gnome brevet machine in charge of Mr. H. Blackburn.

Brooklands.—At Sopwith School, in early morning, Sopwith (Wright type) biplane brought out, and Mr. Hawker started for Michelin duration prize. After very good flight lasting for 2½ hours, Mr. Hawker was obliged to descend as the weather was becoming steadily worse and was in no way fit for a prolonged flight. Mr. Sopwith arrived from Farnborough on 70-h.p. Sopwith tractor biplane with Lieut. Spencer Grey, R.N., as passenger, finishing up with magnificent spiral glide from 3,000 ft. with the propeller completely motionless.

At Percival School, Mr. Percival out on little Caudron flying extremely well for considerable time. In evening again Mr. Percival brought out Caudron for about half an hour.

Bristol School.—Mr. Merriam with Lieut. Kitson and Lieut. Boyle, latter then alone. Mr. Merriam also with Major Forman and Lieut. Kitson, Capt. Pigot circuits. Mr. "Darracq" circuits. Lieut. Empson with Mr. Merriam and latter as passenger with Major Forman and Lieut. Kitson. Mr. Bendall behind Lieut. McLean and Lieut. Kitson, Lieut. Pigot and Lieut. Boyle flying.

In early morning Mr. Raynham arrived from Shoreham on Avro Limousine, intending to go for Duration Michelin. During afternoon Mr. Raynham was out testing machine with full Michelin load of petrol and oil.

At Vickers School.—Mr. Knight out on No. 3 for test flight, then handed over to Capt. Stott and Mr. Soames, former putting in some excellent curves and straights and landing well, latter contenting himself with useful rolling. Mr. Barnwell also out on No. 5 and No. 6 machines. In evening Mr. Knight test on No. 3 followed by Mr. Soames doing good straights.

Salisbury Plain (Bristol School).—Mr. Harrison with Mr. Featherstone, but weather too bad. Mr. Pizey test in evening, but wind and rain still too bad.

TUESDAY, October 22nd.

R.F.C. (Central School).—Very strong northerly wind, wet and cold, bumpy in evening, but not so strong. On Avro 406, Capt. Fulton 5 mins.; Lieut. Stopford 5 mins; Lieut Shepherd 8 mins.; Capt. Risk 10 mins. On Avro 404, Lieut. Anderson, 13 mins.; Lieut. Abercromby 5 mins.; Capt. Fulton 5 mins. On Maurice Farman 403, Lieut. Winfield-Smith 10 mins.

R.F.C. (Farnborough).—No wind, slight rain, and very misty. Capt. Raleigh 12 mins. on Bréguet 213. Evening still misty. On Bréguet 213, Capt. Raleigh two good flights. On Maurice Farman 207, Major Moss two flights. On Maurice Farman 214, Capt. Reynolds two long flights. On biplane 206, Capt. Darbyshire, Lieuts. Longcroft and James all making long flights.

Eastchurch.—Heavy rain until 7.45 a.m., then Paymaster Berne, R.N., on school Short biplane S.34, two flights. During afternoon Donnêt-Lévêque hydro-aeroplane for Admiralty flown from Sheerness to Isle of Grain by Lieut. Conneau, for official tests. At 5 o'clock Lieut. Seddon, R.N., on S.38 twice.

Hendon.—At Blackburn School. Mr. Harold Blackburn test of 8 mins., and handed over to Messrs. Glew, Buss, and Lawrence Spink, for 10 mins. each. In evening short flights of 5 mins. each pupil.

At Deperdussin School.—Weather too rough for school work, but later in afternoon, in spite of wind, Mr. Gordon Bell took out new 100-h.p. Gnôme military and flew with usual cleverness several circuits, landing splendidly. After refilling with petrol he again flew a couple of circuits with passenger. No work possible for pupils.

Bleriot School.—Wind and rain all day. No school work.

Jameson School.—Mr. Temple on Blériot making straights.

Brooklands.—Bristol School. Mr. Bendall with Lieut. Kitson and Major Forman. Mr. Merriam with Major Forman and Lieuts. Rodwell and Kitson, Capt. Pigot circuits, Lieut. Boyle straights. Lieut. McLean with Mr. Merriam and with Mr. Bendall.

At Percival School, in early morning, Mr. Percival out for about an hour on Caudron biplane, flying wide circuits at over 500 ft.

At Sopwith School, in spite of fog and drizzling rain, Mr. Hawker started off in early morning for another attempt on Duration Michelin. After flying for more than three hours he was obliged to descend owing to magneto trouble.

In morning, Mr. Raynham made plucky attempt on Duration Michelin on Avro Limousine. After flying for three and a half hours he was brought down by broken water connection. Hard luck.

Afternoon and evening, no flying owing to high wind and heavy rain.

At Vickers School.—Mr. Knight first out on No. 3 for test flight, then handed over to Mr. Soames who did excellent straights, landing very well.

Liverpool (Waterloo).—Mr. Birch had out "Y" engined

Melly monoplane and gave exhibition of figures of 8, planing and spiralling from 1,000 ft.

Salisbury Plain.—Bristol School. Mr. England, with Lieut. McArthur and Mr. Harrison, with Mr. Featherstone. Mr. Pizey with Mr. Gray.

WEDNESDAY, October 23rd.

R.F.C. (Central School).—Dull all day and cold, shifty and westerly wind. On Avro 406, Lieut. Shepherd 14 and 7 mins.; Capt. Fulton with Petty-Officer Andrews 20 mins., with Leading Seaman Bateman 25 mins., both on practice ground. Air Mechanic Higginbottom 5 and 7 mins.; Capt. Salmond 5 mins., and with Sergt. Jones 5 mins.; Lieut. Anderson 5 mins.; Capt. Fulton also with Lieut. Freeman 8 mins. On Avro 404, Lieut. Cholmondeley 25 mins. over to Lark Hill and back, and 15 and 6 mins.; Lieut. Stopford 23 and 10 mins.; Lieut. Anderson 20 mins.; Lieut. Waldron 15 mins.; Lieut. Shepherd 10 mins. On Maurice-Farman 403, Lieut. Ashton 30 mins.; Major Higgins 10 mins.; Lieut Lushington 7 and 10 mins.; Lieut. Young 7 mins.; Master-Mechanic T. O'Connor 10 mins.; Lieut. Winfield-Smith 15 and 10 mins.; Lieut. Hubbard 10 mins. On Short tractor 413, Major Gerrard with Chief-Mechanic Scott 7 mins. and 10 mins. alone; Capt. Salmond 7 mins.

R.F.C. (Farnborough).—Heavy mist, but Mr. Cody out on Military biplane, and Mr. de Havilland on "B.E.2." Mist cleared by 3.30 p.m., so Capt. Reynolds out on Maurice Farman 214 20 mins. and 17 mins., one flight with Sergt. Hunter. Later, Sergt. Hunter two flights 10 mins. and 15 mins. handling machine quite well for first time. On biplane 206, Capt. Darbyshire and Lieut. Longcroft each several flights, one flight Lieut. Longcroft taking Sergt.-Major Fletcher. On Bréguet 213, Capt. Raleigh 10 mins., then taking Major Maitland up to 1,200 ft. for 10 mins.

Eastchurch.—In early morning Captain Gordon, R.M.L.I., on school Short biplane, instruction to E.R.A. Freeman and Shipwright Edwards. Forenoon, Lieut. Spencer Grey, R.N., excellent flights on Deperdussin monoplane. Lieut. Seddon, R.N., two hours' flight, with E.R.A. Leigh as passenger, on Short biplane S.38, reaching 7,300 ft. S.34 out; Leading Seaman Russell doing straights and Electrician Deakin circuits. Afternoon, biplanes S.34 and S.38 both out, with Lieut. Courtney R.N., Paymaster Berne, R.N., and Boatswain Bobbett, R.N. Lieut. Spencer Grey, R.N., on Deperdussin; Commander Samson, R.N., twice, on Short twin-engined monoplane; second trip with Engineer-Lieut. Briggs, R.N., as a passenger. Whilst flying S.34, Boatswain Bobbett, R.N., had to make a forced landing, and unfortunately killed two sheep in doing so. Donnêt-Lévêque hydro-aeroplane this afternoon put through official trials by Lieut. Conneau, who took up Sub-Lieut. Hewlett, R.N.

Hendon.—W. H. Ewen School out at 10 a.m. under M. Baumann on monoplanes 1 and 2. Messrs. L. Russell and M. Zubiaga good straight rolls. Lieut. M. W. Noel and Mr. R. S. McGregor good progress on monoplane No. 1. In afternoon, M. Baumann out with pupils. Mr. L. Russell and Mr. M. Zubiaga good straights at 15 ft. with good landings. Lieut. M. W. Noel and Mr. R. S. McGregor taxying on monoplane No. 1. Messrs. Lawford, Warren and Gist all straights and half circuits with good landings. On No. 2 monoplane, Mr. E. T. Prosser (new pupil) had first instruction.

At Grahame White School.—In morning Capt. Halahan circuits on No. 5. Major Madocks passenger flights on same machine with instructor. In afternoon, Captain Halahan more circuits. Major Madocks, Lieut. Birch and Messrs. Clarke and Francis rolling on No. 7.

Bleriot School.—Messrs. Gandillon, Gratien and Sacchi practising all afternoon on L.B.3.

Deperdussin School, only lot out with three machines for pupils. Ready to start practice when down came fog. Later weather brightened up. Captain Tucker out on brevet machine, doing figures of eight. Mr. Ware out on same. On No. 3 racer Messrs. Mapplebeck, Brock, Hooper, and Whitehouse put in good straights. In afternoon weather fine. Captain Tucker went for brevet. Banking particularly good, and confidence in the machine evident, as observers noticed him affectionately patting petrol tank by way of coaxing his mount to final effort. Other pupils out on school machine No. 4. Later Mr. Ware, when landing, accidently switched on, and before machine could be stopped, ran into Dep. No. 3, which had just finished brevet flights. Did fair amount of damage, and effectively stopped further practice on that machine.

Jameson School.—Mr. Temple on Blériot, straights.

Brooklands.—Thick fog in early morning.

At Sopwith School, in afternoon, Mr. Hedley out for a short time on Sopwith biplane. Later Mr. Hawker out for some time on Sopwith (Wright type) biplane.

Bristol School.—Mr. Merriam with Major Forman and Lieuts. Rodwell and Kitson. Capt. Pigot figures of eight. Lieut. Boyle good circuits. Mr. Bendall in evening with Lieut. Boyle and Lieut. Empson. Mr. Merriam with Major Forman, Lieuts. Kitson and Rodwell. Capt. Pigot figures of eight. Lieut. Boyle doing left and right turns.

At Vickers School.—Mr. Knight out on No. 3. Capt. Stott and Mr. Soames both put in excellent work, latter doing good curves. Mr. Barnwell out on No. 5, but engine giving slight trouble.

Salisbury Plain.—Bristol School. Mr. Gray with Mr. Pizey. Mr. Harrison behind Lieut. McArthur. Lieut. McArthur and Mr. Gray for first solos. "Capt." Penfold out alone, and got lost in fog, eventually finding his way back. Capt. Lucina passed certificate tests. Mr. Harrison with Mr. Featherstone in rain. Mr. England in afternoon with Mr. Featherstone, then with Lieut. Shekleton. Mr. Harrison with Lieuts. McArthur and Shekleton. "Capt." Penfold, Lieut. McArthur and Mr. Gray all out alone. Mr. Pizey with Mr. Featherstone in biplane and Lieut. Fielding in tandem monoplane. Mr. Busteed testing Prince Cantacuzène's machine with the prince as passenger.

THURSDAY, OCTOBER 24th.

R.F.C. (Central School).—Southerly wind, very thick fog early. On Avro 406, Capt. Fulton with Air-Mechanic Hodgson 25 mins., with Petty-Officer Andrews 15 mins, and with Leading Seaman Bateman 20 mins., all on practice ground; Lieut. Shepherd 20 mins., and with Lieut. Freeman two 14 mins. to Lark Hill and back; Lieut. Stopford 20 and 10 mins.; Air-Mechanic Higginbottom 20 mins.; Lieut. Cholmondeley 18 and 12 mins.; Lieut. Waldron 25 mins.; Lieut. Abercromby 35 mins. to Lark Hill and back. On Maurice-Farman 411, Lieut. Courtney 15 and 8 mins.; Major Trenchard 9 and 7 mins.; Major Higgins 6 mins.; Capt. Risk 13 mins. On Short tractor 413, Major Gerrard 8 mins, and with Lieut. Atkinson 10 mins.; Capt. Salmond 10 mins.

R.F.C. (Farnborough).—Heavy mist all day, flying impossible.

Eastchurch.—Morning, school biplane out. Commander Samson, R.N., with Engineer-Lieut. Briggs, R.N., flew Short twin-engined monoplane from Eastchurch to Isle of Grain. Captain Gordon, R.M.L.I., on biplane S.34, giving instruction to E.R.A. Freeman, Carpenter Collins, and Shipwright Edwards. Lieut. Seddon, R.N., with E.R.A. Badeley, put up another very fine non-stop flight, from Eastchurch to Margate and back, reaching 7,450 ft. Afternoon, Lieut. Spencer Grey, R.N., several flights on the Deperdussin; biplane S.34 out; Shipwright Edwards taxying and Leading Seaman Russell straights; biplane S.38 flown by Lieut. Courtney, Paymaster Berne and Boatswain Bobbett, R.N. Commander Samson so on this machine with passenger. From Isle of Grain, Lieut. Hewlett, R.N., made first flight on Donnêt-Lévêque hydro-aeroplane round Sheerness Harbour and back.

Hendon.—W. H. Ewen School, out at 10 a.m. for long day's work, M. Beaumann with pupils on monoplanes Nos. 1 and 2. Messrs. L. Russell and M. Zubiaga good straights at 15-20 feet, Lieut. M. W. Noel and Mr. R. S. McGregor hopping. In afternoon Messrs. L. Russell and M. Zubiaga further practice with good landings. Lieut. M. W. Noel and Mr. R. S. McGregor hopping, Mr. E. T. Prosser rolling. Messrs. Lawford and Gist straights and half circuits with good landings. During afternoon Mr. Sydney Pickles flew 60-h.p. Caudron two-seater biplane from Farnborough, leaving there at 2.45, arriving at Brooklands 16 minutes later, where he descended to greet old friends. Leaving later for Hendon he arrived at 2,500 feet, and did fine glide. M. Galy out with 45-h.p. Caudron, doing exhibition flying and passenger carrying.

At Grahame-White School.—In morning Mr. Clark straights flights with instructor.

Bleriot School.—Messrs. Welburn, Sacchi, Gandillon and Gratien all straights, and Messrs. Gandillon and Gratien each a circuit on L.B.3.

At Deperdussin School.—Foggy, but by 9 o'clock very fine morning. School taxi 2, with Mr. Whitehouse, Capt. MacDonell, Lieut. Mapplebeck, Mr. Hooper, and Lieut. Brock, all at work. Mr. Gordon Bell too kout military three-seater, and with passenger on board and full load of fuel, did fine half-hour's exhibition and test flying prior to delivering machine to Farnborough. The machine is fast, averaging 66-67 miles per hour, and climbed steadily to 1,400-1,500 ft.

In afternoon good school work put in by all pupils. Mr. Dennis Ware went for brevet. His eights were admirable.

At Blackburn School, Messrs. Glew and Lawrence Spink 6 mins.; Buss 12 mins. In evening Messrs. Buss, Glew, and Lawrence Spink 4 mins. each.

Brooklands.—At 7.40 a.m. Mr. Raynham started for Duration Michelin in thick fog. Avro Limousine flying well with the 60-h.p. Green engine nicely throttled down. After magnificent record flight of 7½ hours Mr. Raynham forced to descend, having run short of lubricating oil. Two hours before descending petrol pressure tank sprung a leak. What this last two hours must have been like can only be imagined, but in any case pilot is worthy of highest praise for his pluck and endurance for sticking to his task in spite of a constant spray of petrol in his eyes.

At Sopwith School.—In early morning Mr. Hawker started for Michelin, but again experienced magneto trouble. New magneto was fitted and a second start made at 9.17. Fog very thick and observers noticed difficulty pilot had in remaining inside aerodrome. In time weather improved and at dusk machine was still making circuits, A.B.C. engine well throttled down and ticking round with perfect regularity. Ten minutes or so before the time-limit Mr. Hawker landed in complete darkness after making a British record of eight hours and twenty-three minutes. During afternoon Mr. Sopwith on Tractor biplane made many trips in order to "pass the time of day" with stable companion.

Mr. Sydney Pickles on Caudron biplane with 60-h.p. Anzani engine called at Brooklands en route Farnborough to Hendon, landing nicely after a spiral "dive" from 3,500 feet.

At Percival School.—In afternoon Mr. Percival brought out Caudron biplane and did some high flying for about an hour, ending up with a nice spiral glide from 2,000 feet.

At Martin-Handasyde's Mr. Petre started for Farnborough, making an excellent journey. Later, as it was getting very dark and pilot some distance from home, forced landing was made in field, only available spot for miles. Landing in itself was perfect, but owing to the darkness the machine ran into a stump on the ground, overturning and was considerably damaged. Fortunately pilot was unhurt.

At Bristol School.—In morning Capt. Pigot went for his brevet and passed tests in excellent style considering the very short time he has been at school. In afternoon Mr. "Darracq" also passed for brevet in first-class style. Both greatly to credit of untiring energy of Mr. Merriam and Mr. Bendall. Mr. "Darracq" is first music hall artist to qualify as an aviator. Lieut. Boyle flying well; Capt. Pigot doing good figures of eight; Major Forman and Lieut. Kitson both out, Mr. Merriam taking latter for tuition and afterwards Lieut. Empson. Mr. Bendall up in afternoon and Lieut. Rodwell, Major Forman and Lieut. Kitson straights; Lieut. Boyle figures of 8.

At Vickers School.—Mr. Knight out on No. 3, followed by Capt. Stott who is making rapid progress. Mr. Soames also out. In evening Mr. Barnwell on No. 5.

Liverpool (Waterloo).—Mr. Birch made excellent flight on 35-h.p. machine, rising to 2,500 feet, thence inland to Ormskirk about twelve miles distant, which he circled and returned to Waterloo by way of Southport. He was in air 30 minutes and had very rough weather in neighbourhood of Ormskirk.

Salisbury Plain.—Bristol School.—Bad weather prevented school work.

FRIDAY, OCTOBER 25th.

R.F.C. (Central School).—Clear, south-west wind, moderate. On Avro 406, Capt. Fulton 8 mins.; Air Mechanic Higginbottom 10 mins.; Lieut. Cholmondeley 10 mins.; Lieut. Abercromby 10 mins.; Lieut. Waldron 15 mins. On Maurice Farman 403, Lieut. Young 20 mins.; Lieut. Hubbard 48 mins.; Master Mechanic T. O'Connor 25 mins.; Lieut Lushington 35 and 7 mins.; Lieut. Wingfield Smith 25 mins. On Maurice Farman 411, Capt. Risk 23 mins. On Short tractor 413, Major Gerrard 12 mins., with Major Higgins 10 mins. and with Lieut. Hartree 14 mins.; Capt. Salmond 12 mins. and with Lieut. Winfield Smith 12 mins.

R.F.C. (Farnborough).—Very misty early. Cleared up about 10.30 a.m. Mr. de Havilland on "B.E.2." Capt. Raleigh on Bréguet 213, testing new propeller and doing speed test. Then Serg. Hunter on same. Lieut. Longcroft several good flights on 206. In afternoon on biplane 206, Lieut. Longcroft with Lieut. Hetherington flew to Bordon. Capt. Raleigh with Major Maitland, on Bréguet 213, also went to Bordon; height 2,000 ft. Lieuts. Wanklyn and Playfair, also Sergt. Hunter, all several flights on 213. Mr. de Havilland taking passengers on "B.E.2."

Eastchurch.—Heavy fog till 11.45 a.m., then Short S.34 out, Capt. Gordon, R.M.L.I., gave instruction to E.R.A. Susans, Carpenter Collins and Shipwright Edwards. Afterwards Susans and Edwards doing straights. Afternoon: Paymaster Berne, R.N., flying Short biplane S.38. Boatswain Bobbett, R.N., on Short S.34 and in landing collided with S.38 standing outside shed, necessitating both machines going into dock. Mr. McClean also out on 70-h.p. Short Tractor for twenty minutes.

Hendon.—W. H. Ewen School, under instruction of M. Beaumann, out at 10 a.m. Messrs. L. Russell and M. Zubiaga good progress in straights at 20 ft. Lieut. M. W. Noel, Messrs. R. S. McGregor, and E. T. Prosser improving in rolling. In afternoon all above pupils showing good results. In addition to above, Lieut. McMullan and Messrs. Lawford, Warren, and Gist all straights and half-circuits, with good landings. During afternoon Mr. Sydney Pickles had 60-h.p. two-seater Caudron out. After splendid exhibition flight he gave cross-country passenger flights to all above pupils, thus adding valuable air experience.

At Grahame-White School.—In morning Major Madocks, Lieut. Birch and Mr. Clarke rolling on No. 7 biplane. In afternoon Capt. Halahan figures of 8 on No. 5. Major Liles straights on No. 7, Major Madocks, Lieut. Birch and Messrs. Clarke and Francis rolling on same. At 4.20 p.m. Capt. Halahan did brevet tests, making excellent eights with well-banked turns. Height 200 feet (third brevet this week at Grahame-White School, two Army and one naval officers, and eighth during present month).

Bleriot School.—Messrs. Welburn, Sacchi, Gandillon, Gratien and Clappen all at straights and circuits.

At Blackburn School.—Messrs. Glew and Buss short straights from 4.10 until 5 o'clock.

Brooklands.—No flying in early morning. Thick fog.

At Sopwith School.—During afternoon Mr. Sopwith brought out Sopwith tractor biplane, with Mr. Whittaker, of The Aeroplane, as passenger, making some very steep banked turns and glides with the propeller motionless.

At Flanders School.—About 11 a.m. Mr. Raynham brought out monoplane, and in afternoon did some very fine flying.

Bristol School.—Mr. Bendall with Lieut. Empson, Lieut. Boyle straights as also Major Forman and Lieut. Kitson. Mr. Merriam with Lieut. Empson, Lieut. Rodwell straights. In afternoon Mr. Merriam with Lieut. Empson, Major Forman, Lieuts. Boyle, Kitson, and Rodwell, all straights. Mr. Bendall with Lieut. Empson.

At Hanriots.—Mr. Sabelli did great deal of flying on single-seater in usual first-class style, doing beautiful banked turns right and left.

Mr. Pashley was out for a considerable time on old Sommer biplane, flying well.

At Vickers School.—In morning Mr. Barnwell out for one of usual splendid flights on No. 5, doing very small eights, then handed over to Lieut. de la Ferte, who also put in excellent flight of 20 mins., doing right-hand turns for first time. Mr. Knight then out on same machine for circuits. In evening Mr. Barnwell out on No. 5 doing any amount of circuits, right and left hand, then Lieut. de la Ferté out on same machine for quarter of an hour, ending with beautiful spiral glide.

Salisbury Plain.—At Bristol School, in morning, Mr. Pizey out followed by Mr. Harrison. Mr. Pizey on tandem monoplane took Miss Kunhardt as passenger. Lieut. Fielding on side-by-side monoplane getting lost in fog landed near Fargo. Mr. Pizey flew with Mr. England to search for him. Mr. Harrison with Mr. Featherstone, Mr. England with Lieut. Shekleton. Prince Cantacuzène on tandem monoplane had to land through running short of petrol. Mr. England with Lieut. Shekleton flew over with replenishments, all flying back. "Capt." Penfold in gusty weather reached a good height. Capt. Kunhardt and Lieut. McArthur each out.

SATURDAY, OCTOBER 26th.

R.F.C. (Central School).—Strong westerly wind, very wet, no flying all day.

R.F.C. (Farnborough).—On biplane 206 Lieut. Longcroft. On Bréguet 213 Capt. Raleigh. On Maurice Farman 207 Major Moss; all flew over Staff College at Camberly at about 2,500 ft. Lieut. Herbert 20 mins. on Maurice Farman 207. Capt. Raleigh, with Commander Palmer, R.N., as passenger, 15 mins. on Bréguet 213. Mr. Cody out on military biplane several circuits, all flying well in mist and slight ran.

Eastchurch.—Nothing doing until 10 a.m., when Capt. Gor-

don, R.M.L.I., was out on biplane S.34 with E.R.A. Susans. Commander Samson and Lieut. Gregory, R.N., both on same machine. Heavy rain stopped flying for the remainder of the day.

Hendon.—In spite of heavy rain and fog Messrs. Gates and Turner each made flights of about 20 mins. each, just to prevent a blank Saturday from breaking continuity of Hendon's successes. W. H. Ewen School found weather too stormy for practice. Mr. N. E. Cowling joined school.

Brooklands.—Mr. Bendall with Major Forman, latter afterwards flying straights. Fog too thick to continue. No flying afterwards, wind too strong.

Salisbury Plain.—Bristol School. Rain and fog prevented flying all day.

SUNDAY, October 27th.

Hendon.—In spite of heavy wind and rain Mr. Noel and M. Verrier out. No flying elsewhere.

The Military Aeroplane Competition.

The report of the Judges' Committee in the Military Competition was issued on Tuesday last. It points out that all the aeroplanes which passed the tests, and those others which, although not entirely fulfilling some conditions, were recommended for awards, were fitted with foreign engines. It may be pointed out that the Avro, which received a consolation prize, was fitted with the Green engine which has since beaten the British duration record.

The report further says that no machines which could really be classed as "military" aeroplanes were entered. The judges formed the opinion that only in one case, the Mersey aeroplane, had an endeavour been made to fit the design to the requirements of actual war, although some designers, in designing an efficient flying machine, had at the same time produced an aeroplane which, with some modification, might be made a useful craft for fighting or reconnaissance. The committee, however, did not feel justified in giving weight to any military considerations except those expressed or implied in the original conditions. Had they done so, the superiority of Mr. Cody's biplane (which was placed first) would have been further accentuated.

As the report arrives at the moment of going to press it will be dealt with in detail later.

The Aerial League Dance.

The first dance in aid of the Aerial League's Million Shilling Fund took place at Richmond, Surrey, on Thursday last, the 24th, and was a distinct success. Among the aviators present were Mrs. de Beauvoir Stocks, and Messrs. Hucks, Fowler, Davies, and Kershaw. Mr. Wallace Barr, as organiser and secretary, will have a nice little surplus to hand over to the League's fund, and it is hoped that his success will encourage other districts to organise similar merry evenings during the winter for the same estimable object.

Mr. Valentine in Ireland.

Several people have inquired recently whether Mr. Valentine had been doing any flying lately, and why he had not reappeared at Hendon. The following is a short account of the exhibition tour arranged for him in Ireland by Mr. Harry DelaCombe.

After the flying at Belfast, in which Mr. Astley met with his fatal accident, Mr. Valentine stayed for some time at Lord Powerscourt's place at Enniskerry, where he flew over the "demesne" on a very windy day and made a tour round the valley at the back of the Sugar Loaf Mountain.

Thence his machine was taken to Mullingar, where he gave an exhibition flight in a 40 m.p.h. wind, landing on a narrow strip of ground cleared in the long grass. After this flight he endeavoured to fly to Cavan, but when travelling at something like 100 miles per hour over one of the numerous loughs in the district, he was very nearly capsized by a gust, so turned round and came back to his original ground.

After this the machine was taken to Lord Farnham's park near Cavan, where Mr. Valentine made three flights, starting actually from the front door of the house down a steep bank. On two occasions he landed at the bottom of this bank and taxied up to the door again. On the third occasion, after giving an exhibition flight in the deer park, the engine stopped on the way back and he landed in a turnip field without doing any damage to the machine.

His next flight was made at Castlebar on a beautifully fine evening from a very small but good ground. There was quite a good crowd there, but it is feared that many of them did not pay for admission. After Castlebar, an exhibition flight was arranged at Tuam. A big wind made it extremely dangerous to fly, but the ignorant crowd grew ive and threatened to break the machine. Mr. Valentine endeavoured to pacify them by twice making long hops the length of the ground, but as this had no effect he went up at 5.20 in the dusk and made an exceedingly good flight.

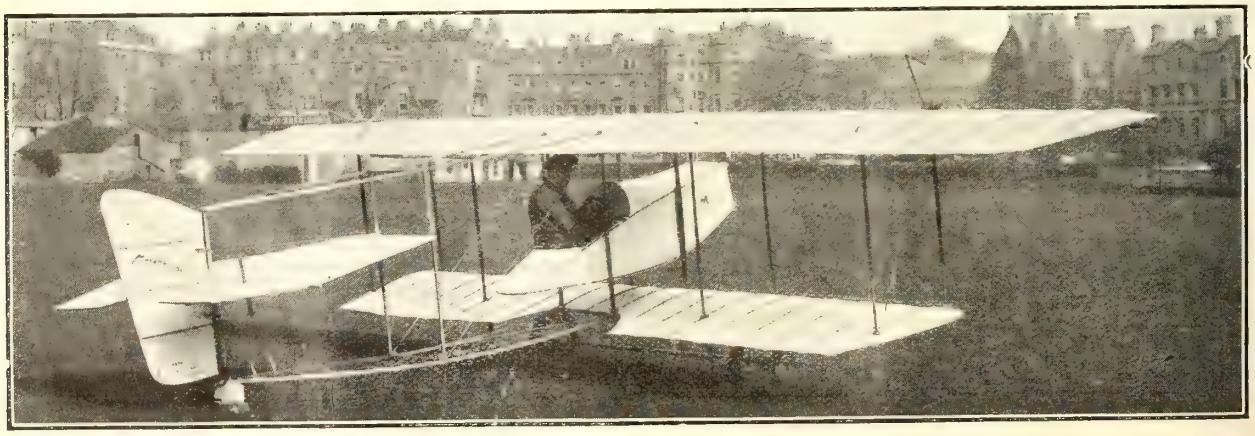
More Ewen Successes.

The School at Hendon still continues to score, and Mr. Pickles is proving himself a most capable instructor. Since joining the school no less than six brevets on the Caudron have been taken by Ewen pilots who have passed through his hands. The latest successes are certificates taken by Mr. J. H. James, Dr. H. Edmund Stodart, Capt. Chamier, Lieut. Eric Conran, and Mr. H. H. James.

The international mixture of the school is shown by the fact that three certificates taken last week include an Indian officer, a Welshman and an Australian officer trained by an Australian, assisted by a Frenchman at a Scotsman's school in England.

A New British Machine.

The latest machine to make a bid for popularity is the "Motorplane," the first of which has been built at Bath by Mr. R. E. Bush. One gathers that a new firm, founded by Mr. Bush, is shortly to make its appearance at Hendon, where further experiments will be made with the machine. Mr. Bush points out that his idea is to produce for the private sportsman a machine simple in design, easy to repair and transport, and comparatively cheap. He does not claim any originality for it, and says it is simply an amalgamation of various well-tried ideas. As may be seen by the photograph herewith, the machine is extremely neat in appearance, and should be efficient. It will be noticed that this machine was photographed before the engine was fitted.



The "Motorplane," which will be seen at Hendon shortly.

MISCELLANEOUS ADVERTISEMENTS

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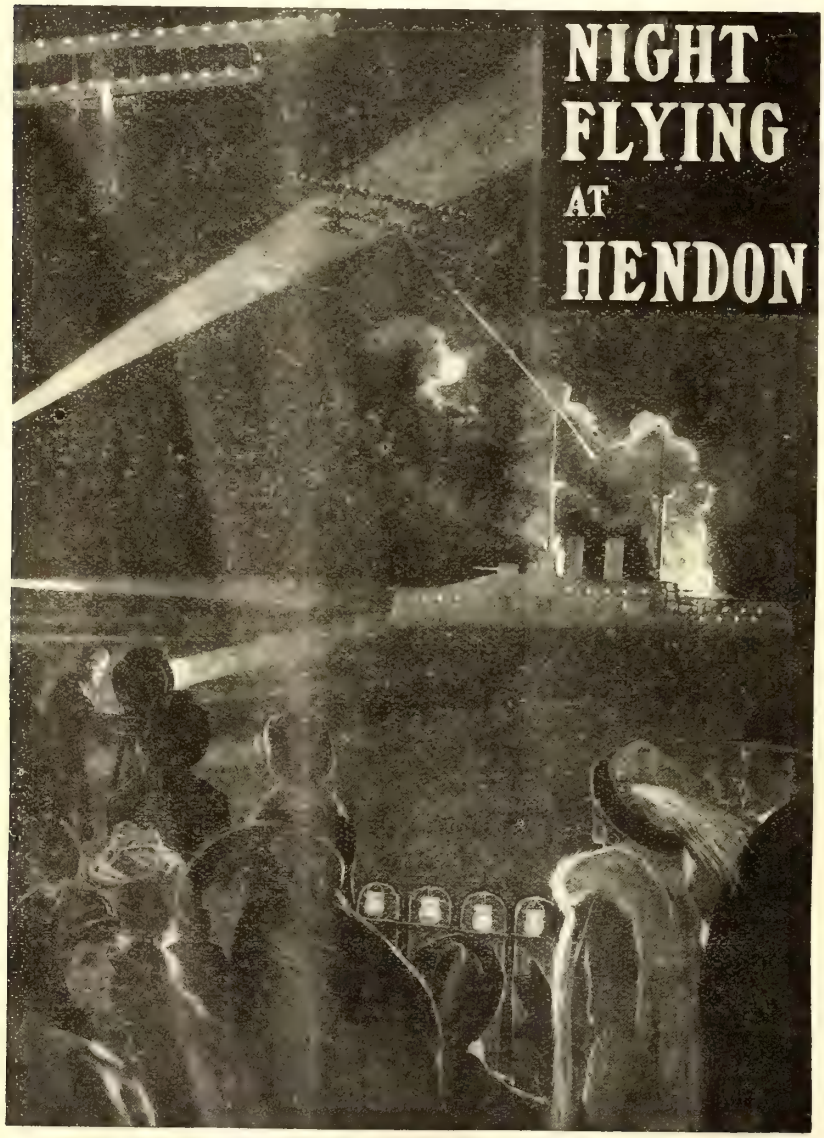
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1d WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [REGISTERED AT THE G.P.O. AS A NEWSPAPER.] THURSDAY, NOVEMBER 7, 1912. No. 19.

A GENERAL VIEW OF PART OF THE PARIS SHOW.



In the foreground is a Caudron wing-tip. Then the Drziewicki-Ratmanoff monoplane. Next is the big Zodiac. Beyond it are the two Savarys. Beyond again are the Hanriot, and then the confused mass of machines in the centre of the Salon.



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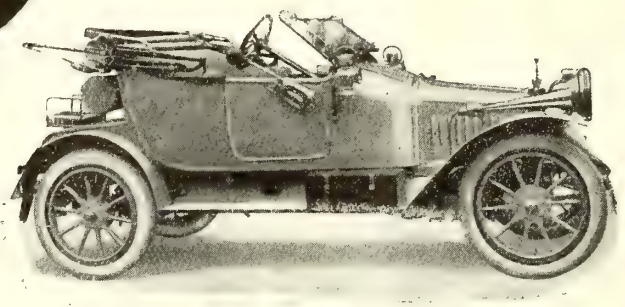
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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Aileron, London.

The Report on the Military Competition.

The report of the Judges Committee on the Military Aeroplane Competition is one of the most valuable documents yet produced in connection with aviation, in that it gives a perfectly unbiassed and trustworthy opinion on a number of the leading makes of aeroplanes, these opinions being formed from actual experience by men who know what they want, and mean to get it. So important is this report that it is necessary to produce it in full. Comments have been interpolated where it has appeared to the present writer that further remark may suggest food for thought or throw light on doubtful or disputable points. Statistics concerning the machines have been omitted, but may be referred to later on.

The Report.

Conditions of the Competition.—The conditions and list of prizes for this competition were published by the War Office on 14th December, 1911, and at the same time a specification was issued in which the conditions required to be fulfilled by a military aeroplane were set forth. On the 16th May, 1912, a further notice was issued, leaving the technical qualifications of the aeroplanes unaltered, but relaxing, to some extent, the stringency of the tests previously laid down, and fixing the 15th July as the date of the competition. On the 11th June, 1912, a further notice was issued postponing the opening of the competition to the 31st July.

[It was the delay from December 14th to May 16th in issuing the second notice which accounted largely for the poor show made by British machines. Everyone was waiting for the final specifications before starting to build machines for the competition, as there was no guarantee that the desirable attributes of the first document might not become compulsory at the finish, and so necessitate the complete alteration of the design. The ultimate relaxation of the rules made things worse for the British makers, as it left a series of tests which could easily be passed by machines built for the French trials in the previous autumn, while no British makers had machines built of such size and power. Consequently the unfortunate British makers found themselves with about eight weeks in which to design, build, and test new machines. At the request of a deputation of British makers, as suggested in The Aeroplane, a postponement of a fortnight was granted, but it was not enough to save two or three makers who would otherwise have done well from being dismal failures. If those makers had been informed in February as to what was required of them—which could have been done but for the criminal lethargy of a couple of high personalities at the War Office—their machines would have done well, and we should by now have had a number of purely British machines in use by the Royal Flying Corps.]

Thirty-two entries were received, and twenty-five aeroplanes were delivered to take part in the competition. Four of these machines were in such an incomplete state that they were in large measure built in the sheds on the competition ground. Two machines, the Aerial Wheel monoplane and the Piggott biplane, had not made a flight by the 24th day of the competition; the competitors who entered these machines were then instructed to withdraw them. Several other entries suffered from being either unprepared or untried.

The tests were carried out as follows:—

Assembly of aeroplane after delivery in packing case.—An officer observer was detailed for each aeroplane. The aeroplane was removed from its case, and the time of erection reckoned from the moment when the various portions were loose upon the ground until the complete machine left the ground in flight. Such points as the number of men employed, ease of adjustment of parts, simplicity or otherwise of arrangements, etc., were noted.

Speaking generally, the monoplanes were superior to the biplanes in this test, and though one biplane, the "Avro," completed it in 14½ minutes, another—that of the Aircraft Company—took 9½ hours to assemble and leave the ground.

[It is worth noting that in the transport test Mr. Busteed's Bristol monoplane was hitched to the car ready to start in 9 mins., and afterwards was assembled ready to fly in 8½ mins. The Hanriot was taken down in 12½ mins., and re-assembled in 17½ mins. Its first assembling time, out of its case, was 14 mins. 45 secs. Per contra, the slowest monoplane was the second British Deperdussin, chiefly because no one troubled about it till the other machines of the same make were ready. It took 7 hrs. 15 mins. to assemble.]

Design, construction and standardisation of parts.—The Judges' Committee examined and compared the details of construction of all competing machines, the staff of the Royal Aircraft Factory being called in to assist in making measurements and expert examinations as were required for the purposes of accurate comparison.

The Judges' Committee also individually and collectively examined all competing machines for convenience of handling, accessibility of all controls, and such other details as ease of communication between pilot and passenger, method of fitting dual controls so that they could be operated with equal ease, or nearly so, from either pilot's or passenger's seat, comfort, etc.; they also took careful note of the design of the landing gear of every competing machine, in order to form an opinion of its efficiency apart from the skill of the pilot.

The competitors gave every assistance during these examinations, and though only a few produced drawings it was possible to arrive at definite decisions as to relative merits in the matter.

Three hours' flight, climbing test, altitude test.—Each competitor was required to fill up his tanks with the fuel and lubricant which he considered sufficient for a flight of 4½ hours. The competitor and his passenger (who was usually a military officer, although this was not insisted on) were weighed, and weight added, if necessary, to make up 350 lbs. Two pocket barographs, and, in most cases, an aneroid and stop-watch, were supplied to the observer, by which the rate of climbing and height attained and maintained were measured. The competitor was informed that his rate of climbing for the first thousand feet would be measured and recorded for competition purposes. If, however, the competitor failed to attain a climbing rate of 200 feet per minute, or if he was dissatisfied with his first attempt, a repetition climb was allowed as a separate test. The attainment of a height of 4,500 feet, and the flight for an hour at an altitude of 1,500 feet, were, however, considered essential parts of the 3 hours' test.

On the competitor's return, the amount of petrol and oil remaining in the tanks was measured by running off, and the tanks refilled; in this way the fuel and lubricant consumption per hour was calculated. In some cases the consumption was ascertained by difference of weight. The results were posted for information as soon as they were worked out.

Speed, and range of speed.—Each competing machine, having first been loaded as for the 3 hours' flight, was timed over a straight course of 3,000 yards, the pilot being instructed to maintain an approximate altitude of 100 feet above the ground throughout each flight over the course. Four courses were flown at the maximum speed the pilot was able to attain, and the average of the timed speeds over the ground was taken as the air speed of the machine.

The courses were flown as follows:—First, two flights, one in one direction and the other as quickly as possible in the other direction, so as to eliminate, as far as possible, the effect of the wind on the result. Two more were then made in the same manner.

To ascertain the maximum range of speed each competing machine was similarly flown over the same course, but the pilot was instructed to fly the machine as slowly as he could with safety. Four courses were flown and the average speed calculated as for the high speed test.

Note was taken of the method employed to reduce the speed, i.e., whether the engine was throttled or switched on or off intermittently. No landing was permitted between the high and low speed tests. The speed and direction of the wind were noted.

[The Judges took infinite pains and trouble over this test, and allowed certain competitors to have their tests repeated. Nevertheless the pilots grumbled more about this test than any other, and refused to be convinced that they were going to be marked on the figures given *after* due allowance had been made for wind speed and direction.]

Gliding test.—The loaded aeroplane was required, in calm air, to effect a descent from 1,000 feet, with the engine cut off, and the horizontal distance traversed during the descent was to be measured. A good gliding angle is a feature having certain practical advantages in the event of engine failure, and, moreover, the satisfactory achievement of a glide of small angle gives some indication of the general efficiency and stability of the aeroplane. As the test had to be carried out under varying conditions of wind speed, the comparative merits of the machines would not have been gauged if the actual distances travelled over the ground had been measured. An instrument which eliminates the horizontal component of the wind speed was therefore used. This device makes a photographic record of the rate of fall and of the rate of travel through the air simultaneously, and, after correction is made for atmospheric temperature, pressure and moisture, gives the actual path of the aeroplane corrected to still air.

The results showed that the tendency of pilots was to cause their aeroplanes to travel at too low a speed for the best gliding angle to be attained. For example, one competitor obtained a best gliding angle of 1 in 6.7 at 92 feet per second, and a worst angle of 1 in 5.5 at 78 feet per second.

[The charts of the gliding angles given in the White Paper containing the report are most interesting, and the comment of the Judges, as above, is borne out most graphically. For instance, M. Verrier on the Maurice Farman got his worst gliding angle of 1 in 5.1 at 52 ft. per sec., and his best of 1 in 9 at 57 ft. per sec., showing that the famous "pancake" act of the Maurice Farman really means a steep descent at a low speed through the air. Similarly M. Prévost on the French Duperdussin reduced his speed to 85 ft. per sec. and descended at 1 in 4.7, whereas when travelling at 91 ft. per sec. for his last 100 yards or so, he got an angle of 1 in 8.9. On the other hand Mr. Gordon Bell on the British Deperdussin did his worst angle of 1 in 5.8 at 62 miles per hr., and his best of 1 in 7.5, at 58.5 miles per hr., showing that he dived more steeply than was necessary. A series of tests on various machines with the instruments used in this competition would be of the greatest service, as they would enable a pilot afterwards to judge his best gliding angle and his limit of safety by the use of a simple air speedometer.]

Landing on grass.—The ground selected for this test consisted of a level expanse of short grass, the surface being firm. The pilot was told to approach the landing place at a height of about 100 feet, descend by a volplané, land and stop in the shortest distance possible. He was allowed to approach the ground as slowly as he could, and to twist and turn after landing. The distance was then measured in a straight line from the point where ground was first touched to the most distant point of the track made by the aeroplane. As a matter of fact, however, all the competitors ran their machines practically straight after landing.

One competitor (Mr. Cody, No. 31) had fitted a brake which he could let down for landing and draw up from the pilot's seat before starting. This consisted of a chain looped round his skid, and the run of his aeroplane was thereby considerably lessened.

Ease of steering the aeroplane on the ground.—In this test the pilot was instructed to run his aeroplane along the ground as slowly as he thought fit, and to steer it in circles and figures of eight, under observation. Steering is largely obtained by the draught of the propeller slip stream acting on the rudder, and the response of the machine is usually best when the speed of travel is high, though for manœuvring purposes there is utility in having prompt response when the speed is small. Accidents have, for example, occurred from a lack of manœuvring power on the ground when nearing a crowd or obstruction. For this reason, aeroplanes in which the propeller is fitted behind the planes and, therefore, near the rudder, have some advantage, e.g., the Cody, Farman, and Mersey. Some aeroplanes obtain greater control on the ground by a steerable wheel or skid, by means of which they steer after alighting from a glide with the engine stopped, or when, the wind being behind them, the propeller slip stream becomes less effective. The competing aeroplanes fitted with this type of auxiliary were the "Avro" and Bréguet. The aeroplanes entered for the trials, for the most part, steered pretty well on the ground.

Alighting on, and rising from, plough.—The field selected for this test consisted of average, fairly easy, 6-inch plough. Its condition, however, varied considerably during the trials, owing to the amount of rain which fell. The field was on a slight slope. The pilot was instructed to approach the field as he liked, and land and stop in as short a distance as possible. After the distance run on landing had been measured, the machine was either wheeled by hand or "taxied" to any spot desired by the pilot. The aeroplane was then re-started, and the distance measured to the point where it left the ground in flight.

[It is interesting here to note that the much reprobated verb to "taxi" has official sanction. It is a good little word, in that it is unlike any other and expresses a distinct idea, namely, that of running an aeroplane along the ground under its own power. In this test again the pilots felt unhappy owing to the varying conditions. However, in the majority of cases competitors who suffered from wet ground had no one but themselves to blame, as they could have done the test before had they so desired. The No. 14 Bristol and the Avro were actually the victims of hard luck, having been broken up in the first week, and rebuilt just while the few good days occurred.]

Road transport.—Each aeroplane was dismantled from flying trim and prepared for road transport. The time was taken from the moment of starting the dismantling until the road equipment was ready to move off. It was then drawn by motor on to and along a road, up and down hill, turned round, etc., and returned to the sheds. The general handiness of the equipment under these conditions, and its approximate speed along the road, were noted. On return to the sheds the machine was re-erected and flown, the time being taken from the moment when erection started until the machine left the ground.

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View.—The field of view of pilot and observer was measured by placing the aeroplane on a floor marked in squares. An observer seated in the machine marked "dead area" on a sheet squared to correspond with the floor marking. A small correction for the varying heights of machines made this methol an accurate one.

[It will be seen that the Judges' sound commonsense is shown by their allowing for different heights of chassis, and it will be remembered that at the time of the competition The Aeroplane pointed out this one fault in a system of measurement which is otherwise almost mathematical in its accuracy.]

Observation of tests.—Every test was observed by responsible officers, and notes were made as to the manner in which tests were carried out. Such matters, for example, as wind speed and its direction, losing height during the measurement of a fast speed test, "yawing" or "switchbacking" on a slow speed test, or diving as a preliminary to a measured glide, necessitated correction of the results obtained. To supplement as fully as possible their information as to stability, view and comfort, the judges made passenger flights in those machines which completed the tests satisfactorily.

[This paragraph explains and emphasises a fact often pointed out to competitors, but never fully realised by most of them, namely, that the machines were being judged and not simply marked. No praise can be too high for the pains the Judges took to see and test everything themselves, instead of trusting to figures.]

The weather.—The weather throughout the competition was most unfavourable, and tried both machines and pilots severely. Those competitors who undertook every test at the first opportunity were fortunate, for there was no improvement in the weather, and those who waited for favourable conditions were somewhat hurried towards the close of the competition. The Judges Committee announced at an early date that weather conditions would be taken into account in considering the standard attained in the performance of each test, but the tendency to await better conditions persisted until the penultimate day of the competition. The first machine to complete the tests did so on the 10th August; two, which had met with no accident, were still struggling on the 24th August.

Order of importance.—The Judges Committee placed the requirements called for in the competition in the following order of importance, and assigned value to them accordingly:—Speed, including flexibility of speed, climbing, gliding, landing, view, starting; communication between passenger and pilot, and dual control; sound construction throughout, interchangeability of parts, and compactness and convenience of handling. No competing aeroplane had a silenced engine, and, therefore, the difficulty of measuring re-e efficiency in this particular did not enter into the awards.

The low position in the above list given to sound construction is due to the fact that those aeroplanes which were considered in the awards all complied generally with the broad requirements in this respect.

The difficulty of judging accurately the capability of an aeroplane to face rough weather is so great that, in spite of its supreme importance, it was considered unwise to allot a high value to it. The Judges' Committee, however, included this kind of stability among other impressions of general excellence which they formed during the course of the trials, and to which due weight was given.

[This is a most important paragraph, and it is only a pity that some sort of idea of the relative values of different points was not given when the final conditions ought to have been issued in February. If this had been done we should have had a very different display of British machines.]

General remarks.

Requirements generally complied with.—When the conditions of the competition were first published they were criticised in many quarters as being too severe. The tests, however, have been surmounted by machines of widely different types, in some cases with considerable margin to spare.

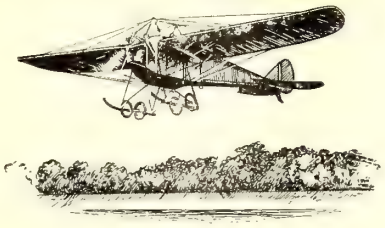
Flying in wind.—The unfavourable weather brought out the fact that, though normally a natural reluctance is felt to flying in winds of 20 to 30 miles an hour when there is no object to be gained, this can be safely accomplished by most machines of a good type. Moreover, once the aeroplane is clear of the ground, the flyer's objection to wind appears to be based chiefly upon the fatigue induced by keeping uninterruptedly on the alert. In a flight of a duration as long as 3 hours, the element of fatigue is an important consideration; improvements in design or mechanism may, however, overcome this difficulty, and allow of prolonged flights in winds of high velocity.

[This implies that the Judges believe in the future of automatic stability. Let them rest assured that if the War Office will issue a definite statement that an order for a hundred machines will be given to the first British maker whose machine flies for an hour with the lateral control and rudder locked—subject to release in case of emergency, say on landing—and with the elevator only in use, can have complete automatic stability in twelve months.]

No really "military" aeroplanes entered.—Of the 10 aeroplanes placed in order of merit, the first five were machines which had not been specially designed for the competition. The qualities asked for in the published "Specification of a Military Aeroplane" were, in fact, the attributes of a successful flying machine, and were only in a secondary sense military requirements. The judges formed the opinion that only in one case, the Mersey aeroplane, had an endeavour been made to fit the design to the requirements of actual war, although some designers in evolving an efficient flying machine had, at the same time, produced an aeroplane which, with some modification, might be made a useful craft for fighting or reconnaissance. The Judges' Committee, however, did not feel justified in giving weight to any military considerations except those expressed or implied in the original conditions. Had they done so, the superiority of Mr. Cody's biplane would have been further accentuated.

[This is the most unkindest cut of all for the average maker who insists on hindering his own and the country's progress by still making big, powerful single-tractor machines, either monoplane or biplane, for ordinary military purposes. The very small, very fast machine for high speed pure and simple may survive for all time, on account of its handiness in transport. But for detailed scouting and fighting we must have the propeller behind. Hence the Judges' remark concerning the Mersey machine, which, by the way, was not designed originally for military work, but merely for personal comfort and efficiency combined. That the Judges should make this reference is a well-deserved tribute to the foresight of Messrs. Fenwick and Swaby. One only wishes poor little Fenwick could have lived to see his work recognised. Also it is to be hoped that someone else will be wise enough to continue his work where he left off. Mr. Cody's sound common-sense is also recognised by the Judges' remark that had they given weight to military considerations beyond those in the original conditions his superiority would have been accentuated. It is a pity the report did not specify what these further military considerations were, as they might have been useful pointers for other designers. Presumably, among other qualities, they include ability to carry and use some form of armament.]

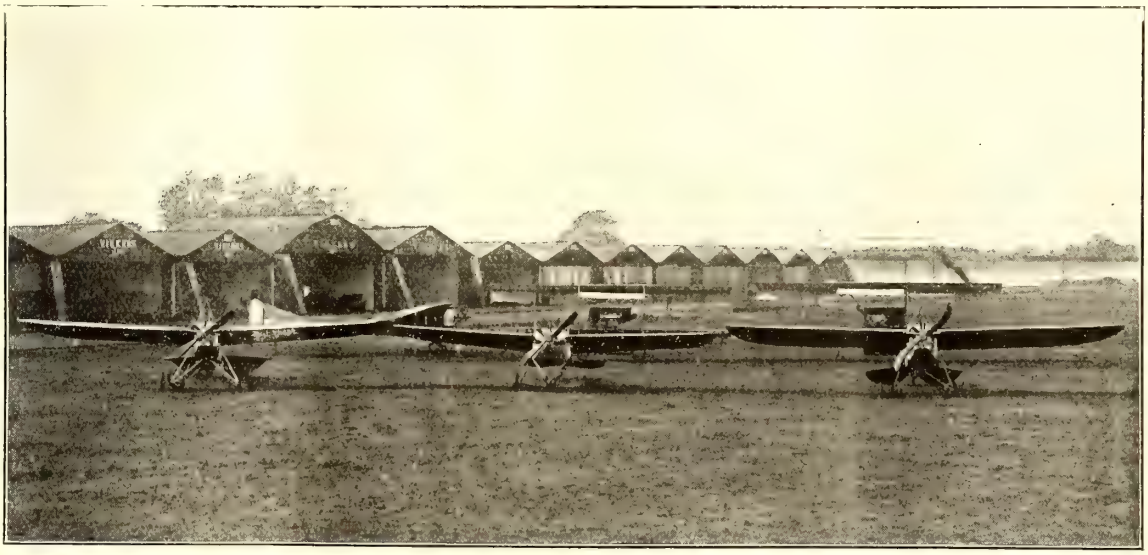
Engine developments.—It is the duty of the Judges' Committee to point out that all aeroplanes which passed the tests, and those others which, although not entirely fulfilling some conditions, have been recommended for awards, were fitted with foreign engines. The longer period of development abroad, which has standardised certain foreign engines, has been greatly in favour of foreign manufacturers, as there is a prospect of purchasers obtaining these engines on a definite date, and of their conforming to a general standard. Two foreign engines of the same type were failures, and spoiled the chances of two aeroplanes of British design, but, on the



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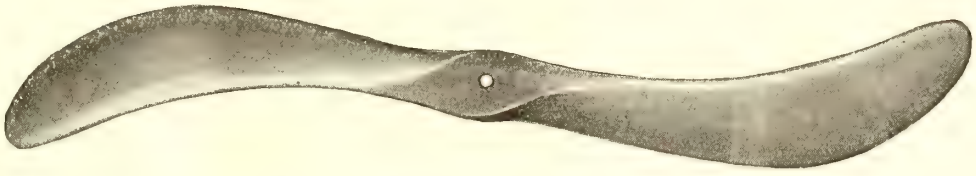
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whole, the foreign engines were trustworthy and efficient. Although the promise of the four types of British engines entered in the competition is hopeful, they have not yet proved themselves capable of equalling the performances of the best foreign high-powered engines.

The importance of encouraging or establishing a first-rate British aircraft engine industry cannot be overrated.

[This, again, is a most important statement, for it not only shows the sound judgment of the Judges, but their appreciation of our needs. It also seems to indicate some difference between them and those who control the purchasing of material for the Royal Flying Corps. That their judgment is justified has been shown by the performances of the 100 h.p. and 60 h.p. Green engines and the 40 h.p. A.B.C., while this report was actually in the Press. That some divergence of opinion exists between the Judges and the purchasing department is shown by the fact that while the Judges emphasise the importance of encouraging a first-rate engine industry, those who have the purchasing power steadfastly refuse to say definitely what qualities they require and what tests they wish to impose before they will buy.

It is peculiar that a genuine mistake should have occurred in this paragraph. The Avro, which was awarded a £100 consolation prize, had a 60 h.p. Green engine, which gave no trouble at all when once tuned up after the smash in the first week. So a machine with a British engine was recommended for an award.

At least two British engine makers are prepared to put their engines to any test imposed and to modify them to suit required conditions, if necessary, provided that orders are guaranteed if the tests are passed. Yet no official pronouncement can be obtained. The writer states once more that so far from acting honestly with British engine makers, one official of a purchasing department has promised the makers of one engine to recommend it for purchase, and has roundly condemned that engine to a third person who was a likely purchaser. How far, then, do the Judges' opinions influence official acts? It is so simple to encourage the industry. All we want is a definite series of tests, a definite limit of weight per horse-power, and if possible some indication of the size of engine required and the price to be paid, and the Government can have the engines in a couple of months. But now is the time to announce the conditions of purchase, and not when the firms with experience of aero-engines have gone out of business, and foreign Zeppelins are over our dockyards in earnest instead of in fun as one was a week or two ago.]

Order of Merit Obtained.

Ten of the competing aeroplanes were placed by the Judges' Committee in order of merit as follows:—

1.—Cody biplane (British), No. 31.

2.—Deperdussin monoplane (French), No. 26.

3.—Hanriot monoplane (French), No. 1; Maurice Farman biplane (French), No. 22, equal.

5.—Blériot tandem monoplane (French), No. 4; Hanriot monoplane (French), No. 2, equal.

7.—Deperdussin monoplane (British), No. 21; Bristol monoplane (British), No. 14; Bristol monoplane (British), No. 15, equal.

10.—Blériot "Sociable" monoplane (French), No. 5.

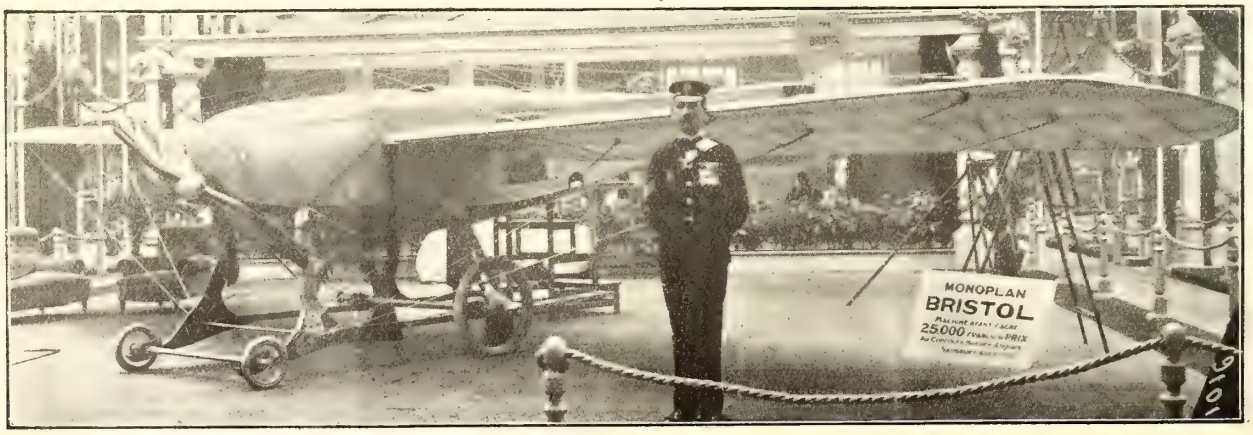
Certain of these aeroplanes did not fulfil some one of the requirements called for, but all were considered to be efficient machines. The standard of excellence attained by several of the competing aeroplanes brought them very close together in the final assignment of positions in the order of merit, although their particular merits were of a widely varying nature. The Judges' Committee were unanimous in the selection given above.

This order of merit may at first seem peculiar, in view of the awarding of the prizes, but it must be remembered that there was no third prize in the "open" class, so the Hanriot did not appear in the prize list, though reckoned third in merit by the Judges. It is believed that the firm was offered consolation prizes of £100, but refused to take them as that would have permitted the Government to purchase the two 100 h.p. machines for £1,000 each, which the firm would not accept. Hence no Hanriots were bought, and the British Army is to-day without a single really fast machine except some Nieuports which are not now flown.

Another peculiarity in this list is that no mention is made of the totally enclosed all-British Avro, which was obviously one of the most economical and efficient machines in the competition, as well as being a genuine novelty of a practical nature. On judging, if not on marks, one would have expected to have seen it at least bracketed 7th.

Also it is peculiar to see the No. 2 Hanriot separated from the No. 1 when both were obviously equal, except perhaps in luck of the weather and engine behaviour.

Otherwise there seem good reasons for the placings given, and it is hoped to deal with the individual performances of the machines and the Judges' remarks thereon, next week.



The Bristol Monoplane at the Paris Show, with the Bristol Commissionaire, who is of so much interest to the Parisiennes.



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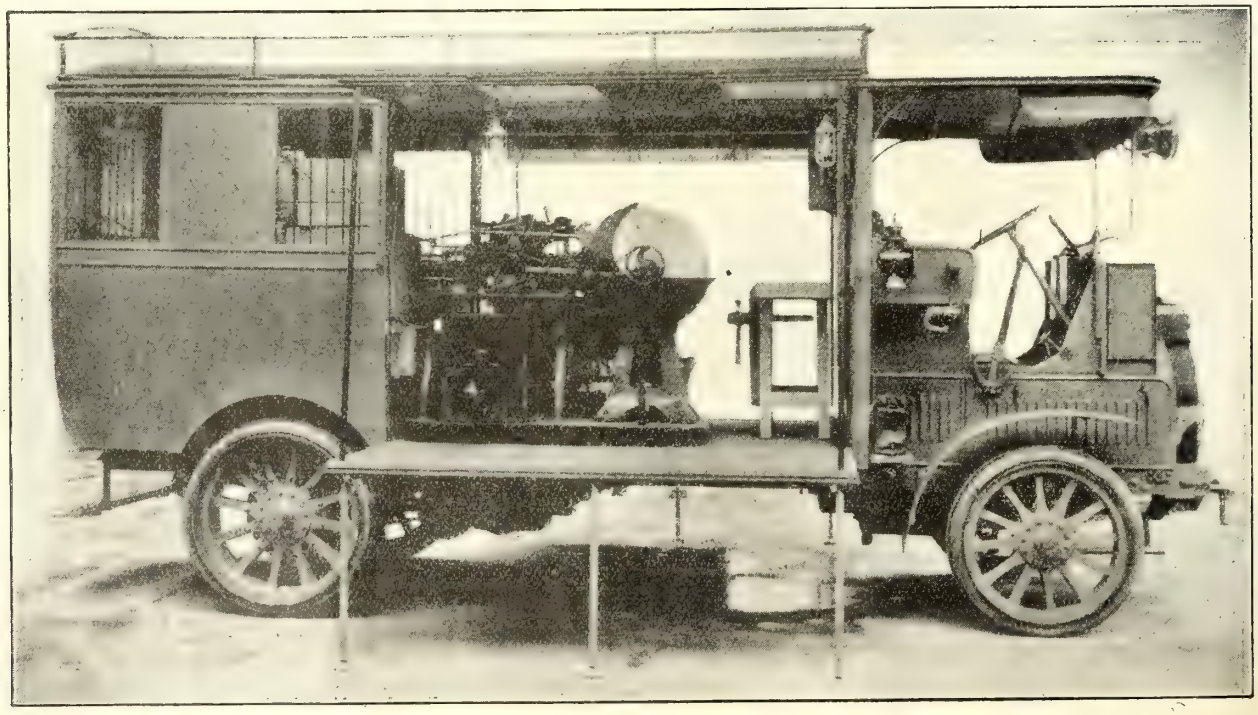
Military Requirements and the Paris Show.

BY W. E. de B. WHITTAKER.

The calendar has a curious fascination for humankind. To judge by the social habits of the people, one would gather that life was not one continuous whole, but a disjointed series of beginnings and endings. Anniversaries and centenaries are made the occasion of considered retrospection and careful co-ordination of future plans. New beginnings are apparently made by scores each New Year, and yet, in truth, existence moves with the same majestic consistent pace through all the ages. There is no set month in every twelve in which, by logical deduction, one prepares good intentions for deeds to come; nor in the mechanical world is a fixed annual period allocated to the creation of inventions. Yet the newspapers, if one were to be impressed by their irresponsible arguments, would have us believe that history is arranged in careful segments after the manner of a child's box of tricks. For the purpose of comparison it is well that human ingenuity does, in fact, create these periods, for without them one would be lost in a mad whirl of what the spectacled enthusiasts call, unctuously, "Progress." And so we have, when the months are cold and bleak, a series of public shows consecrated to the glorification of mechanical genius and clever paintwork. The horse, apparently undismayed by the prospect of a zoological museum, performs graceful evolutions on an area of sawdust surrounded by hordes of the idle rich in the early summer. Its rivals—the motor-car and the aeroplane—display their cold, inanimate splendour as the year grows old, but the same idle rich assemble and make the same banal remarks. And then people write books on the history of the science, punctuated by elaborate photographs of possible and impossible apparatus.

Though one scoffs, one actually desires to see progress at these shows. In aeronautics, the Paris Salon sets the seal on the advance of that science throughout the year, and through the varnish and the polish one is able to estimate the discoveries of the year. Since 1908, when the first fragmentary show was held, the entire aspect of aviation has altered. Then all who were interested talked of a revolution in locomotion and foresaw in the course of a few years—barely a decade—a successful two-day trans-Atlantic service of aeroplanes, and had visions of country doctors using cheap and efficient aeroplanes to convey them on their round of visits. The millennium had almost arrived, and the aeroplane was its harbinger. And then the tale of death and disaster began. Valuable lives were lost for the furtherance of the science, and what came nearer to the hearts of the people—money—disappeared in a continuous rapid stream with no promise of return. So, as the grave and the bankruptcy courts seemed to be the two alternatives facing the budding aviator, public opinion changed and averred that the immediate future of aviation lay in warfare. And actually, at this point of history, the only financial promise of the business lies in the sale of machines to wealthy and trusting Governments.

The first two aero shows were dedicated to the exhibition of machines whose single attribute was that they flew. The form and efficiency mattered nothing. Anything had its place so long as it would lift from the ground in the approved manner. We have passed that stage. One is mildly surprised when an aeroplane does not fly. The time has arrived for designing machines to suit their future uses. It is therefore surprising and disappointing that military requirements have received so little attention. The soldier wants as points in the ideal military aeroplane uninterrupted view in front and below, simplicity of control, compact form, speed, and the maximum of safety. Every part must be simple in idea and of great strength. At this year's Salon, to take the majority of cases, only one of these attributes has received adequate attention, and that is—speed. So far as the monoplanes are concerned, they are entirely constructed with this view. The *monocoque* is supreme. Even M. Blériot, who is credited with strong opinions on design, has produced a monoplane of this type.



One of the French Army workshop wagons, as supplied to all aeroplane squadrons.

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Power of uninterrupted observation, the most important feature of any military machine, is hardly considered on any of the exhibits. With one or two exceptions, such as the Farman biplanes, the best field of vision can be obtained from the least efficient machines in the show. The "Tubavion," a collateral relation of the de Pischoff "Autoplan," possesses many virtues from a military point of view. As both pilot and passenger are seated below the planes, with the engine and propeller perched high up behind them, they have unrivalled opportunities for observation. Rifles or a small quick-firer could be used with ease. But then, so far as flying is concerned, this aeroplane is outclassed by 90 per cent. of the other exhibits. The Sanchez-Beza biplane, which resembles the Donnet-Lévêque in general outline, also present possibilities for the mounting of guns. One would imagine its low centre of gravity to be a serious drawback. Generally speaking, the biplanes alone, and only a few of them, present any real possibilities for observation. The monoplanes, almost without exception, conceal their occupants with the meticulous care desired by the most ardent of criminals. What advantage there can be in carrying an observer who can see less than the pilot passes understanding.

No provision is apparently made on any aeroplane exhibited for the adequate fitting of guns, quick-firers or otherwise. Quick-firers are shown mounted on some machines, but the effect of firing them would probably be astonishing. It is not sufficient to place a gun on the ordinary type of aeroplane. The structure must be specially prepared for its reception. Two years ago a Voisin biplane was shown carrying a small gun, the firing of which in the air would have inevitably swelled the list of aviation tragedies. There is something pleasantly childish in such make-believe exhibitions.

A point on which due importance was laid in the printed conditions of the British Military Aeroplane Competition, and which was quietly ignored in the event, was the fitting of a handle that the pilot might start his engine without leaving the machine. In the present Paris Show a number of machines are fitted with engine-starting devices, all more or less efficient in action. Of these, the Borel is one of the most promising so far as rotary engines are concerned.

Compactness of form and ready means of assembly or packing have certainly increased. Transport difficulties are much lessened.

But, taking the show as a whole, one cannot say that the makers have attempted to or realised the necessity of designing machines suitable for military purposes.

Naval and Military Aeronautics.

THE ROYAL FLYING CORPS.

From the "London Gazette" of October 30th :—

SPECIAL RESERVE OF OFFICERS.

Royal Flying Corps, Military Wing.—Second Lieutenant (on probation) Collyns P. Pizey is confirmed in his rank. Lionel Seymour Metford to be Second Lieutenant (on probation). Dated October 30th, 1912.

FRANCE.

There is some talk of an extension of the military aerodrome at Douai. Colonel Bouttieaux has recently held several interviews with the Mayor of Douai and discussed the purchase of ground.

Lieut.-Aviators Marlin and Germain, both on Gnome-engined Hanriot monoplanes, flew, on October 30, from La Brayelle (Douai) to Lille. They both landed at their destination in the dark.

On the same day Lieut.-Aviator Battini flew from Epinal to Nancy and back on a Maurice Farman biplane. At the same time, and on a similar machine, the "maitre d'armes" Quennehen made a reconnaissance of the German frontier.

Lieut-Aviator Poutrain, who some days before had a serious accident whilst flying near Laon, died in hospital on October 31. He was decorated with the Legion of Honour shortly before death.—W.

GERMANY.

Lieutenant-Aviator Hamburger fell from a height of 250 ft. and was killed at Oberviesenfeld, in Bavaria.—W.

RUSSIA.

Three lieutenants, Popoff, Batabouchka and Ivkoff, passed for their pilot's certificates at Gatchina several days ago.

Four Russian aviators left for service with the Montenegrin forces on October 29.—W.

Mr. C. J. H. Mackenzie-Kennedy writes from St. Petersburg referring to a statement in The Aeroplane on the Russian Military Competition Committee that "it also raises doubts as to the nationality of Kennedy, who entered a biplane. He claimed to be Russian. An additional inquiry is to be held." Mr. Kennedy says, "This is not at all right. The Expert Commission only asked me to furnish a certificate endorsing that my biplane was projected and erected in Russia, as it was, and according to the competition regulations which required that such be the case, allowing at the same time that separate parts be made abroad. On all these points the Expert Commission were fully satisfied by myself. I am an Englishman, and that is sufficient, I hope, to guarantee that I would never pass myself off for any other nationality, even if it should be somewhat to my benefit to do so, which, in the present case, anyway, it would not have been." The correction is made with pleasure, though one would have gathered from it's name that Mr. Kennedy was Scottish rather than English.

ITALY.

The military aeroplane competition, organised by the committee of the national subscription, is to take place in April next.

As a result of the successful use of dirigibles in the Italo-Turkish war, three new dirigible balloons have been ordered by the Ministry of War, and are under construction at present. They are the P.5, the M.2, and the G.1. The letters P.M.G. denote size, i.e., P. petit, M. moyen, G. grand.

The P.1, which made several successful reconnaissances in Tripoli, is now at Bracciano, where it is now being used for bomb-dropping experiments, under the direction of Lieut. Buontempelli (artillery).—W.

TURKEY.

The aviator Popoff flying as a scout of the Bulgarian army was brought down by gun fire whilst making a reconnaissance of Adrianople. This is the first death of an aviator killed on active service.—W.

SERVIA.

Raoul de Reals, Emile Védrines, Godefroy, and Bourdin left Paris for Servia on November 2. They intend to accept commissions in the Servian Army.—W.

GREECE.

The order the Greek War Office placed at Mulhouse for six Aviatik biplanes was conditional on the firm's supplying a pilot and two mechanicians for each of the machines. A salary of £250 a month was guaranteed per pilot and of £50 for each of the mechanicians. The men will accompany the aeroplanes.

ARGENTINA.

Mr. C. K. Tindall, writing from Buenos Aires, says that flying from the Villa Lugano Aerodrome (Buenos Aires), on September 23, Señor Pablo Castaibert, on a monoplane, created a new Argentine record by reaching an altitude of 1,000 metres, which occupied 33 minutes.

The descent created a great impression on the spectators. From a height of 900 metres he dropped almost vertically until within 300 metres of the ground, where by a spiral evolution he landed safely. This descent occupied only three minutes and on a barograph, attached to his machine—out of reach of the aviator—lent for the occasion by the Argentine Aero Club, his descent is registered by an almost vertical line.

The highest official altitude previously attained, viz., 248 metres, was effected by a Belgian, M. Dolphyn, flying a Voisin biplane during the Centenary Celebrations in May, 1910.

A military aviation ground at "El Palomar" (Buenos Aires) has been started and some very successful flights by pupils have been made, under Instructor Paillette. Several machines are on order for these pupils.

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The Royal Aero Club.

The following aviators' certificates have been granted:—335, Capt. Robert Boger, R.E. (Bristol biplane, Bristol School, Brooklands); 336, Lieut. A. M. Read (Northamptonshire Regt.), (Bristol biplane, Bristol School, Brooklands); 337, Arthur Payze (Bristol biplane, Bristol School, Brooklands); 338, Lieut. Frederick Ernest Styles (Royal Munster Fusiliers), (Bristol biplane, Bristol School, Brooklands); 339, Norman Channing Spratt (Deperdussin monoplane, Deperdussin School, Hendon); 340, Capt. J. A. Chamier (33rd Punjabis), (Caudron biplane, Ewen School, Hendon); 341, 2nd Lieut. G. F. Pretyman (1st Somersetshire Light Infantry), (Bristol biplane, Bristol School, Brooklands); 342, Lieut. E. L. Conran (2nd County London Yeomanry), (Caudron biplane, Ewen School, Hendon); 343, Lieut. F. G. Small (Connaught Rangers), (Grahame-White biplane, Grahame-White School, Hendon); 344, Henry Howard James (Caudron biplane, Ewen School, Hendon); 345, Commander Alan Montagu Yeats Brown, R.N. (Grahame-White biplane, Grahame-White School, Hendon).

Public Safety and Accidents Investigation Committee.

A meeting of the Public Safety and Accidents Investigation Committee was held on October 22nd, when the following official representatives were appointed:—Eastchurch, Lieut. R. Gregory, R.N.; Yorkshire, Mr. F. Strickland.

The Committee proceeded to inquire into the fatal accident to Capt. P. Hamilton and Lieut. A. Wyness-Stuart.

Vickers' Developments.

Considerable developments in the aviation department of Vickers, Ltd., may be expected in the very near future. Already the experimental monoplanes, Nos. V and VI, built by the company during the summer have shown themselves to be extremely good fliers. Also the Vickers air-cooled engine of R.E.P. type has thoroughly justified its existence. Quite recently the firm have arranged to manufacture under licence the famous Levasseur propellers, which have been used with so much success by M. Salmet, Mr. Sopwith, and others, and have proved themselves exceedingly efficient.

The Vickers Aviation School at Brooklands is being rapidly expanded, and as Mr. Sopwith has given up school work in order to devote himself to manufacturing, the Vickers firm have taken over his school Farman machine and the general impedimenta of his school. They have also acquired another biplane of Farman type for school work, and a slow-flying tractor biplane will soon be added to the school, so that the preliminary efforts of pupils take place under the simplest circumstances before they are promoted to the faster monoplanes. The chief instructor at the school is Mr. Barnwell, who will be remembered as building and flying a machine of his own in Scotland somewhere in the dim past of 1909. He has lately proved himself to be an uncommonly good pilot and instructor. Altogether, those who wish to join a well-equipped school where they will receive every attention and sound tuition will do well to investigate the Vickers propositions to prospective pupils.

A Globe-Trotter Returns.

Among recent visitors to these offices was Mr. Howard Pixton, who had just returned from Roumania, where he had been delivering a Bristol monoplane to the authorities at Bucharest. He describes the surrounding country as being ideal for flying, as it is very flat and quite clear of trees and hedges for many miles. Mr. Pixton says the Roumanian officers have the makings of very fine fliers, being full of pluck and initiative, to which qualities is due the fact that practically all their machines have been smashed up.

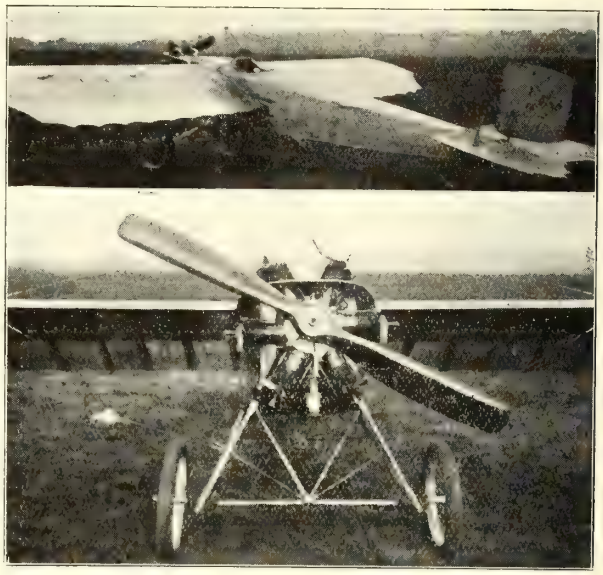
Mr. Sippe's Move.

Mr. Sydney V. Sippe, who flew so well on the Hanriot monoplane in the Military Competition on Salisbury Plain, evidently made a distinct impression by his performances, for he has now left Brooklands to join the Bristol School on the Plain. He should prove a valuable addition to the number of excellent pilots already engaged by the firm, and it may be safely said that no other British firm, and few, if any, abroad, have such a strong team of high-class fliers to demonstrate their machines to the best advantage.

Continental Notes.

Garros made an attempt on the height record on October 30, but owing to the high wind landed after seven minutes flight. He was upset in landing, but was quite unhurt.

M. Daucourt, who made a flight from Valenciennes to Biarritz on a Borel monoplane, has now been declared the winner of the Coupe Pommery. When one considers that his rivals have been Brindejonc des Moulinais, Audemars, Bathiat, Gilbert, and Védrines, one realises his excellence.



The 45-h.p. Caudron Monoplane.

Lieutenant de Conneau made several flights before a Swedish Commission at Bezons, on November 1. The sale of several Donnet-Lévêque hydro-aeroplanes is expected to follow.

A Russian aviatrice, Mlle. Galantchikow, made a flight of 45 minutes on November 2, at Johannisthal. She intends to attack the ladies' altitude record.

Practical Points.

Mr. T. McCleod writes pointing out that the three-seater Valkyrie monoplane, with the 60-h.p. Green engine, can claim the honour of being the first British-built three-seater monoplane to fly. The Editor apologises to Mr. H. Barber for having placed this honour elsewhere.

Mr. McCleod further writes, *apropos* of a recent article, that if twin propellers, chain driven, are used and a propeller breaks, as in the case of Capt. Engelhardt's Wright biplane, disaster must follow even when the machine is piloted by so experienced an aviator. As a matter of fact, Capt. Engelhardt had a serious accident through a chain breaking when he was near the ground, but that was not the cause of his ultimate and fatal accident. It has been pointed out also that the German aviator Haas was actually killed through a chain breaking, with the result that the machine slewed round suddenly and hit either a tree or a house. On the other hand, several cases have occurred in America of chains breaking on Wright machines, and in every case the pilot has been able to pull the machine straight by switching off the engine and diving.

Mr. C. R. Taylor writes from Manchester that in the course of the Military Competition, the Avro enclosed biplane with the 60-h.p. Green engine was practically started by the pilot alone, under the personal observation of General Henderson. One is informed, however, that in this particular instance Lieut. Parke, R.N., the pilot, swung the propeller once, and after that Mr. Fred May, of the Green Engine Company, gave it half a dozen other swings, Mr. Parke standing beside him, after which Mr. Parke hurried round to the pilot's seat and switched on with the dual ignition fitted to that engine. The engine started satisfactorily and ran for a few minutes at about 400 revs. per minute without anybody holding the machine. The reason that Mr. Parke did not finish swinging the propeller was that the machine, being built rather high, and Mr. Parke being somewhat below the average height, he could not conveniently reach the propeller, so, as the performance was purely for demonstration purposes, the officials consented to Mr. Fred May doing the actual swinging.

Stop Press Note.

As The Aeroplane goes to press it is announced that Mr. Sopwith's appeal against the steward's decision, which disqualified him in the Aerial Derby, has been upheld. He thus becomes the winner, with Mr. Hamel second, and Mr. Moorhouse third. Congratulations.

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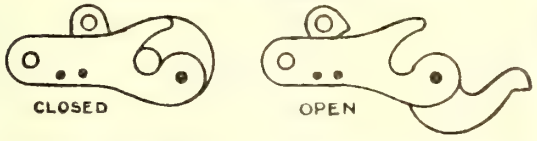
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The Paris Aeroplane Show.



The Military Aeroplane Tractors and their Trailers at the Paris Show.

Two facts impress themselves on the British visitor to the Paris Show before he has been there more than a few minutes. Firstly, how far in front of us France still is in the manufacture of aeroplanes; and, secondly, how thoroughly the French Government realises the value of interesting the great mass of the people in aviation.

The first fact is evident not so much in the design of the machines as in the workmanship, and here, again, not so much in the workmanship as such, as in the evidence that the machines are not individual experiments, but the finished product of organised factories. Bad design there is, aerodynamically and in detail, but the finish is that of the motor engineer and not that of the jobbing carpenter or the handy man of the hangar.

The second fact is shown by the great display of military machines bought by the National Aviation Fund and presented to the Army, and now lent by the Army to the show so that the people of France may see for themselves how their odd francs subscribed in a purely patriotic spirit have been of service to their country. The machines are guarded by sentries so that one cannot climb about them as one does about the ordinary exhibits, and their sanctity makes their presence the more impressive. Some of them show signs of considerable wear, and so go still further to prove that the Army appreciates the people's gifts. Further, the Military Authorities have lent a number of the transport and repair wagons used by the aeroplane squadrons to show how the Army does its work.

All this exhibition of military machinery looks either as if the French Army wished to provide free education for foreign officers visiting the show, or else as if it was intended merely as a show of the air power of France. But, so far as I can gather, the idea is simply to interest the French taxpayer in the Army's work, and it is considered that if any foreign soldiers do learn anything fresh it really does not matter, for by the time they have been able to assimilate the knowledge and turn it to practical use, France will have made considerable progress and will still be that much ahead. A thoroughly sound idea, worthy of a business people. It is just the difference between the businessman who is always pleased to show a commercial rival over his place and explain its workings—safe in the knowledge that he himself has further improvements coming along—and the petty shopkeeper who hates a competitor coming inside his shop for fear he should learn some little huckster's trick which would earn him a few more pence. You will, I am sure, appreciate the difference between being a nation of shopkeepers and a businesslike nation.

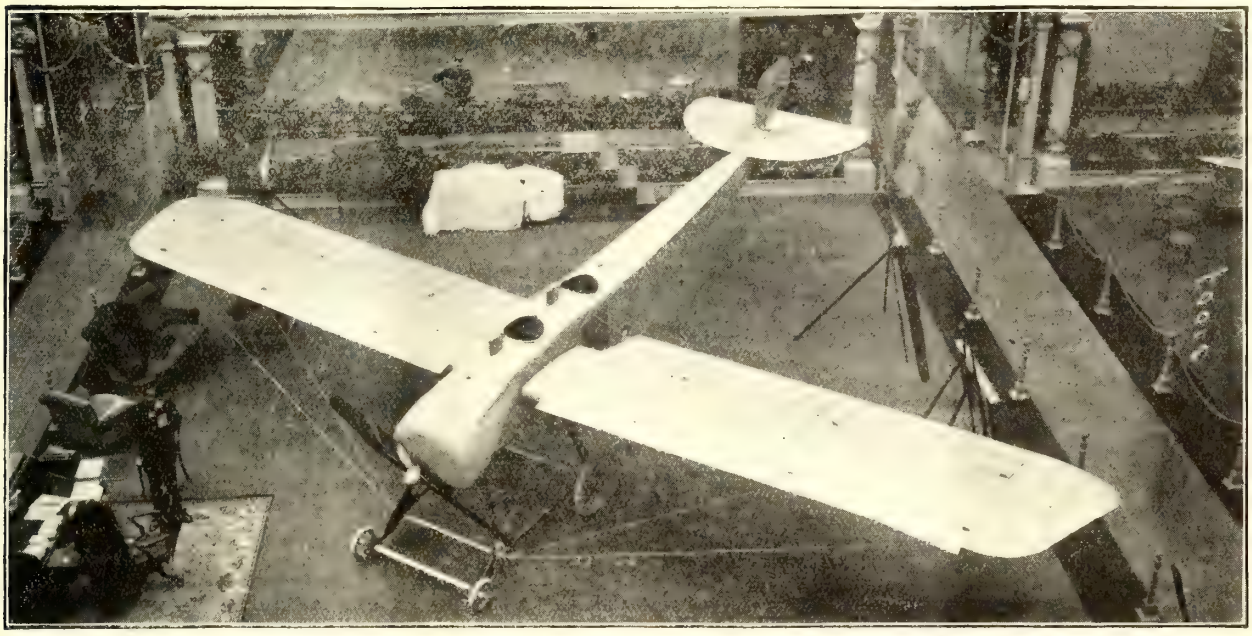
One wonders whether the Royal Flying Corps will lend some of its best-used school machines for the Aeroplane Show at Olympia next February to show the British taxpayer that the Army pilots are earning the special pay granted them by an anticipatorily grateful War Office. Certainly such machines as the old Short tractor hydro-aeroplane, "S.41," and the school Avros, Shorts, Bristols, and Farmans from the Central Flying School, each bearing a record of the hours it has spent in the air, the miles it has flown, and the pilots it has trained, or who have flown it, would be interesting and educative even to the British public, and such records would be easily obtainable—unless, of course, the authorities feared to give away State secrets to foreign powers.

However, having moralised, let me to the show itself—C. G. G.

The Aeroplane Exhibits.

As two British firms have had the pluck to show at the Grand Palais it is only fair that they should be given pride of place in a British paper.

The Bristol Company show two machines. On the ground floor is a monoplane of the Coanda type, practically exactly the same as those flown by Messrs. Busteed and Pixton in the Military Competition. The neatness of the machine has been increased by the method of covering the fuselage. This,



The Coanda-Bristol Monoplane, which is much admired by French and foreign visitors to the Show.

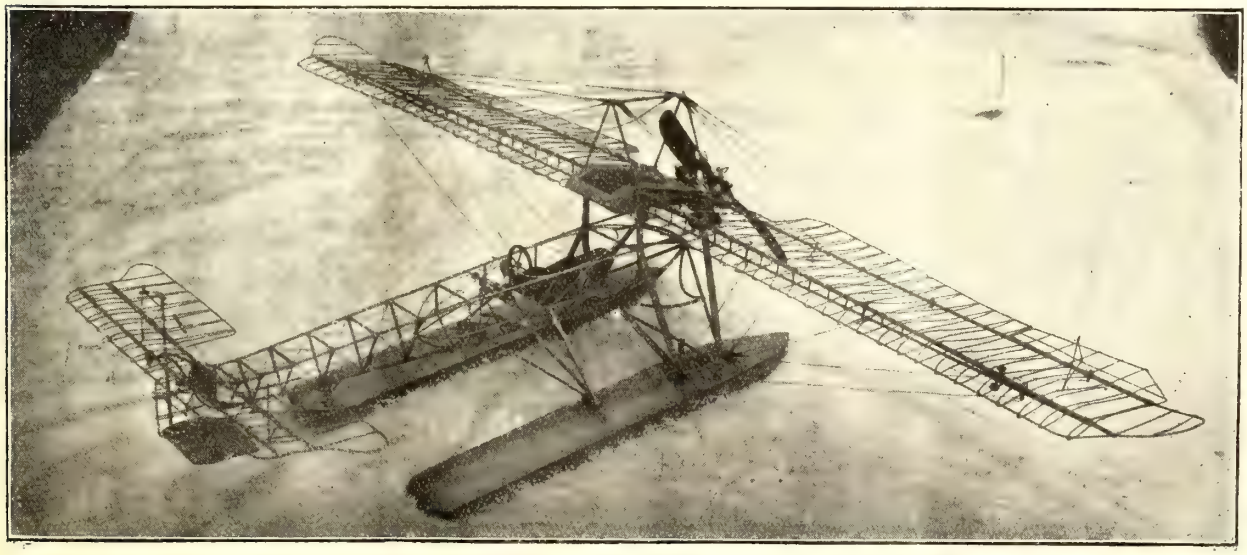
I believe, is a speciality invented by Mr. Farnall Thurston, and consists in making up the fabric like a Brobdignagian glove finger, turning it inside out, so that the seams go inside, and then pulling it on to the fuselage, after which the "dope" shrinks it tight, the rudder, elevator, etc., being fitted afterwards. The general finish of the machine is excellent, and seems to impress both French and foreign visitors very favourably. The announcement displayed on the stand last week that the Italian Government had ordered 37 of these machines created something of a sensation. The cowl fittings over the 80-h.p. Gnome have been improved, and altogether the machine is a very workmanlike job. Its speed, its excellent gliding angle and its ability to stand a big wind were thoroughly proved in the military competition, so it deservedly stands high in the estimation of foreign military authorities, among whom fast monoplanes are considered of value for purposes of war.

The other machine shown by the firm is a 50-h.p. monoplane, which now has a chassis of the same type as the 70-h.p., but lighter. It, also, is a strong, workmanlike job.

The British Bréguet Company is the other British exhibitor. Here also is an excellently-built machine, which attracts favourable comment. The fuselage is now covered entirely with aluminium sheeting, and a new type of chassis is fitted, in which two front wheels are connected to the axle of the main landing wheels by radius-rods, and their axles are connected by a leaf spring to a big steel tube running down from the front of the fuselage. This arrangement supersedes the old steerable front wheel which has long been a distinguishing feature of all Bréguets. The universal joint of the cruciform combined tail and elevator has been improved and made neater, and warping pedals are fitted as an aid to, or as a change from, the rocking of the control lever, which also steers by means of a wheel, and controls the elevation by a backward and forward movement. The engine in this machine is a Salmson (Canton-Unné) fitted with the cylinders horizontal, and drives by means of a bevel gear.

M. Vinet show a monoplane of the same type as in previous years, with the body down below the wings, and the engine high up to get the centre of gravity right. The machine flies well enough, but it can hardly be efficient, as the centre of head resistance is all out of balance with the thrust and centre of gravity.

M. Marcel Besson's all-steel "canard" monoplane is one of



Skeleton Model of the Besson Hydro-aeroplane Structure.

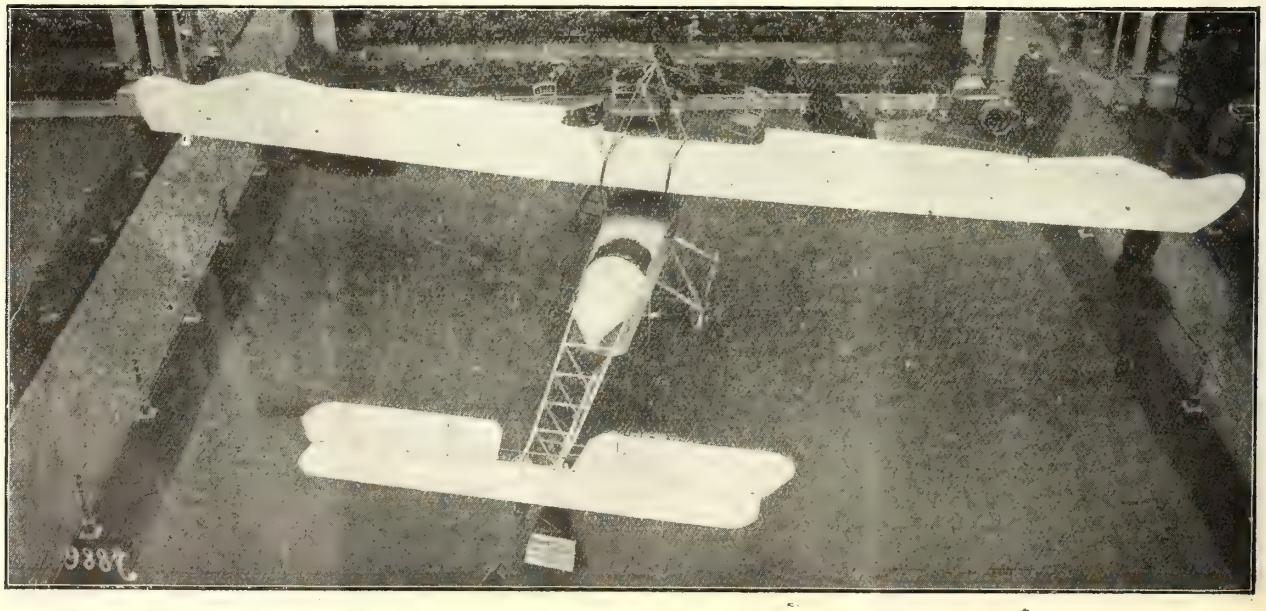
the most interesting and brainiest machines in the show, both on account of its aerodynamic design and its detail work. M. Besson explained that it is not supposed to have a show finish, but apart from that the thing is put together in a most workmanlike way, every joint being built for strength and lightness combined. In a general way it is like the original Valkyrie, with a lifting front plane which has elevator flaps at its rear edge, but the pilot and passenger sit in front of the wings with the engine right behind. It is intended primarily for water work, and it looks to me as if, when the floats are on it, the centre of gravity will be too low, but presumably M. Besson knows more about it than I do. However, what particularly took my fancy was the wing design. The shape of the wing is excellent, having a heavy camber in the centre, washing out gradually to sharply turned up tips—in the style beloved of M. Tatin. Judging from practice in other machines the shape should be both efficient and stable. And, as a further point of excellence, the wings are not warped, but have balanced ailerons. Also, the whole wing frame is built of steel tube. The front spar is a true girder, having a big tube above, and a small tube below, the two being some distance apart at the butt of the wing, and joining at the tip. The ribs are also of steel tube, autogenetically welded to the spars, and the only movement in the wing apart from the ailerons, is that the trailing edge is slightly flexible owing to the give of the light tubing. The whole machine is designed to be taken to pieces quickly and simply, and at the same time nothing seems likely to come unstuck unintentionally.

The Donnet-Lévêque biplane naturally draws a good deal of interest, as being the first successful attempt to produce a real flying boat, but now that the first enthusiasm at its success has worn off people are beginning to discover defects. There is the obvious trouble of the high centre of thrust when on the water, and the complicated balance caused by the centre of resistance being low when in the air. Also, the narrow boat allows the machine to roll on the water till the bottle floats on the wing tips get right into the water, and swing the whole machine round. There seems to be a growing opinion that this type will be more practical when built in very large sizes, possibly even in tandem form with a set of wings forward and another set right aft. Meantime the small size does very well on comparatively smooth water, and the one shown has certain recent refinements added. A starting handle is fitted so that the pilot can start the Gnome engine from the inside of the boat. Also landing wheels have been arranged so that they keep the boat well clear of the ground when landing, and can be drawn up above water level when coming down on water. This is done simply by winding up a wire which compresses the springs of the wheels beyond the point to which an ordinary landing would drive them. The boat body is beautifully finished and polished up for the show, but the detail work of the purely aeroplane part of the machine is not particularly impressive.

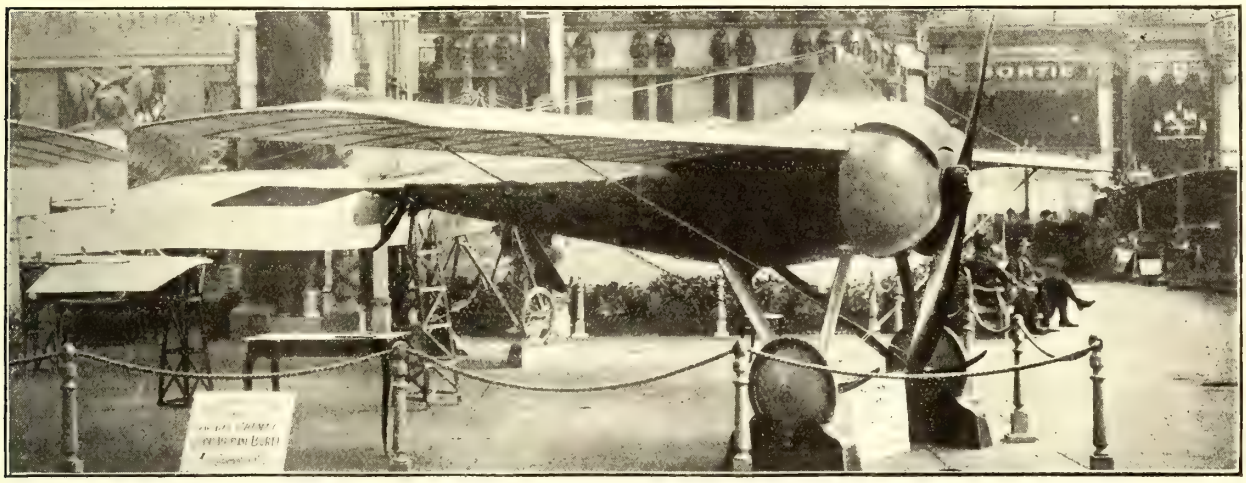
Ponche and Primard have a developed version of the "Tubavion" monplane which first appeared last year. This machine is built entirely of metal, even to the aluminium covering of the wings, except for the skids. Practically, the machine consists of a huge steel tube running fore and aft, and round this the machine is built. The wings are on either side, half-way along it. The Gnome engine is fixed on it behind the wings, the shaft of the engine being arranged so that it is a continuation of the back-bone of the machine, the tail being some feet behind the engine. The pilot and passenger are in an aluminium boat body below and in front of the wings, close to the front of the skid. Judging from photographs, the machine flies quite well, but the general effect is scrappy, and the miscellany of tubes from the back-bone to the skids and spars must increase head-resistance.

The Borel exhibit is one of the most interesting in the show. Three machines are shown, an "armoured" war-plane, or "avion" as the French call it, a tandem two-seater hydro-monoplane, and an ordinary monoplane. The avion is quite an imposing affair, with its torpedo body of circular section tapering to a point at the tail, and the big metal cowl over the engine. As a matter of fact the body covering is three-ply wood, and the actual armour is a sheet of steel under the pilot's and observer's seats, which would probably deflect a glancing bullet, but would scarcely stop a straight plug. The three-ply covering is pretty, and probably saves skin friction, but, as one of the Borel engineers pointed out to me, it is not so easy to repair as is the ordinary fabric covering over straight bits of stick. Everything possible has been done to reduce head resistance, even to streamlining the warping pylon and the steel arm projecting through it to work the warp wires themselves. I may be wrong, but it looks to me as if the cables had about three times the strength of the arm that operates them. Rather a new system of bracing is used in bringing the big cables of the left wing spar across to the right side of the chassis, and the right hand cables to the left of the chassis, so that the lift tends to compress the chassis instead of tearing it apart. The objection to this system is that it makes the cables work at a very acute angle. Incidentally it is worthy of note that only a single cable—fitted in duplicate—is used to each main spar, the spar itself being a huge baulk of timber with steel flitch-plates, which looks as if it could do without stays at all if the fuselage would hold it.

The hydromonoplane is quite a simple machine with ordinary catamaran floats, but it has proved itself to be a really good flier, scoring heavily at the Tamise meeting. A novelty fitted to it is a neat and simple dial indicator from observer to pilot, something like those used in giving orders to chauffeurs. The control is new, consisting of a segment of a wheel, for the warp, mounted on a pillar which works the elevator. The workmanship on all the Borel machines is particularly good. The ordinary shore-going machine is distinguished by having the chassis cross-braced by steel tubing



The Besson Hydro-aeroplane, minus its floats.



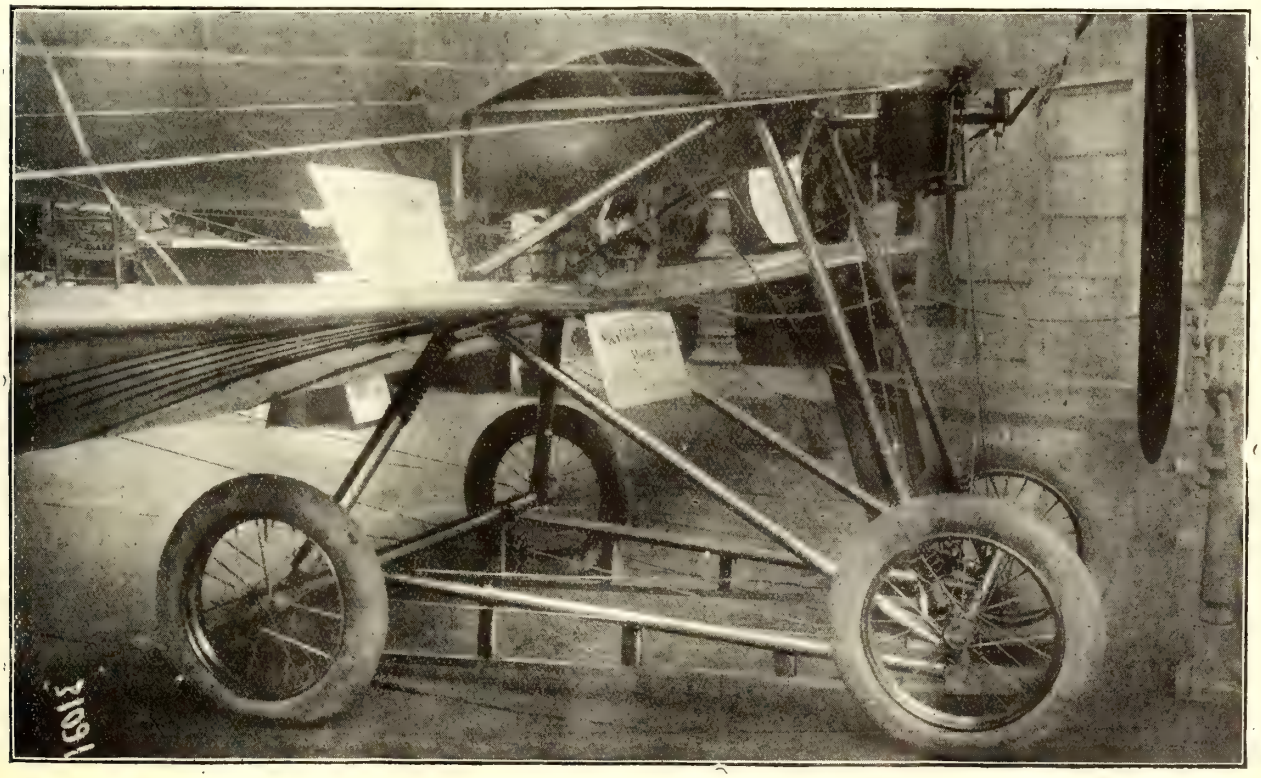
The Borel Armoured Military Monoplane.

instead of by wiring. The "hydro" is fitted with a simple internal starter for the engine.

The R.E.P. firm has now become allied to the Bréguet, so that the three stands occupied by the two firms each have some of both firm's exhibits. On one are a French Bréguet biplane and a R.E.P. monoplane, both, as usual, splendidly built. The other two contain R.E.P. hydro-aeroplanes and Bréguet parts. The hydro-aeroplanes are simply the familiar and well-tried R.E.P. machines with a Fabre float instead of the ordinary wheels. The floats are sprung by the usual R.E.P. system of struts sliding in guides up the sides of the fuselage. A Bréguet is shown packed for road transport, on its own wheels, and there is a neat trailer designed to carry R.E.P.'s when towed by a car.

The Bréguet, near the entrance, has a chassis somewhat similar to the British Bréguet, but with two upright tubes to the front of the fuselage instead of one, and it has a pronounced dihedral to the lower plane. Also it has an 80-h.p. Gnome geared down in the same way as the 100-h.p. which M. Moineau flew at Hendon. Another novelty are pressed steel skids of girder form towed by the axle between the front wheels and running back to the rear axle. On the same stand is a small R.E.P. with the familiar chassis, but minus the big central skid.

M. Henry Farman has one of the most popular exhibits in the show, this being an 80-h.p. biplane of exactly the same type as that made familiar by M. Noel at Hendon—the one Mr. Gates flew across France and M. Noel flew across the Channel. This is shown with its floats fitted, and reposes gracefully in a little pond of its own, the said pond having an artistic edging of grass. The effect is quite pretty and has the practical advantage of showing how a water machine rests on its secondarily native element. To give an added touch of realism, some humorous friend of Mr. Farman's donated a gold-fish to the maritime exhibit, but I fear the hope that flying-fish may be bred in the pond is doomed to disappointment. The body of the machine is now metal cased and looks even neater than before. A beautiful little Hotchkiss quick-firer is fitted on the cowl, and somehow its presence accentuates the clear field of fire given by the open



The New Chassis of the Bréguet Biplane.

front of the Henry Farman type of biplane. The advantage of the comparatively recent alliance between the Henry and Maurice Farman businesses is shown in the excellent workmanship of this machine, which is a great advance on that of the Mourmelon built Henry Farmans seen at previous shows.

M. Maurice Farman has the stand just across the gangway, where one of the familiar Renault-engined biplanes is shown. This only differs from those with which M. Verrier has made us familiar in its minor fittings. In the bow of the fuselage little electric lamps are fitted in the style made popular by the most up-to-date car makers, the lamps sticking out of the curve of the cowl. There are also celluloid windows to the fuselage. The excellence of the finish is, if possible, more perfect than before, and the Maurice Farman seems to occupy more than ever a position among aeroplanes analogous to that held by the Rolls-Royce among motor-cars. Mr. Dick Farman assured me that the mileage covered by French officers on Maurice Farman machines is far greater than that covered on any other make. He seems to be afraid that the freedom of their machines from trouble may re-act in a peculiar way by giving the impression that any fool can fly a Maurice Farman and that M. F. fliers may be looked on as not being aviators. As a matter of fact, when a man flies as Verrier does there is no doubt about his being a real pilot, and a man may be a very valuable military pilot, as a navigator and scout, without being a trick flier, also the more that military machines fly themselves the less they tire their pilots, so that Mr. Farman need have no fear of the facility of piloting his machines jeopardising their saleability.

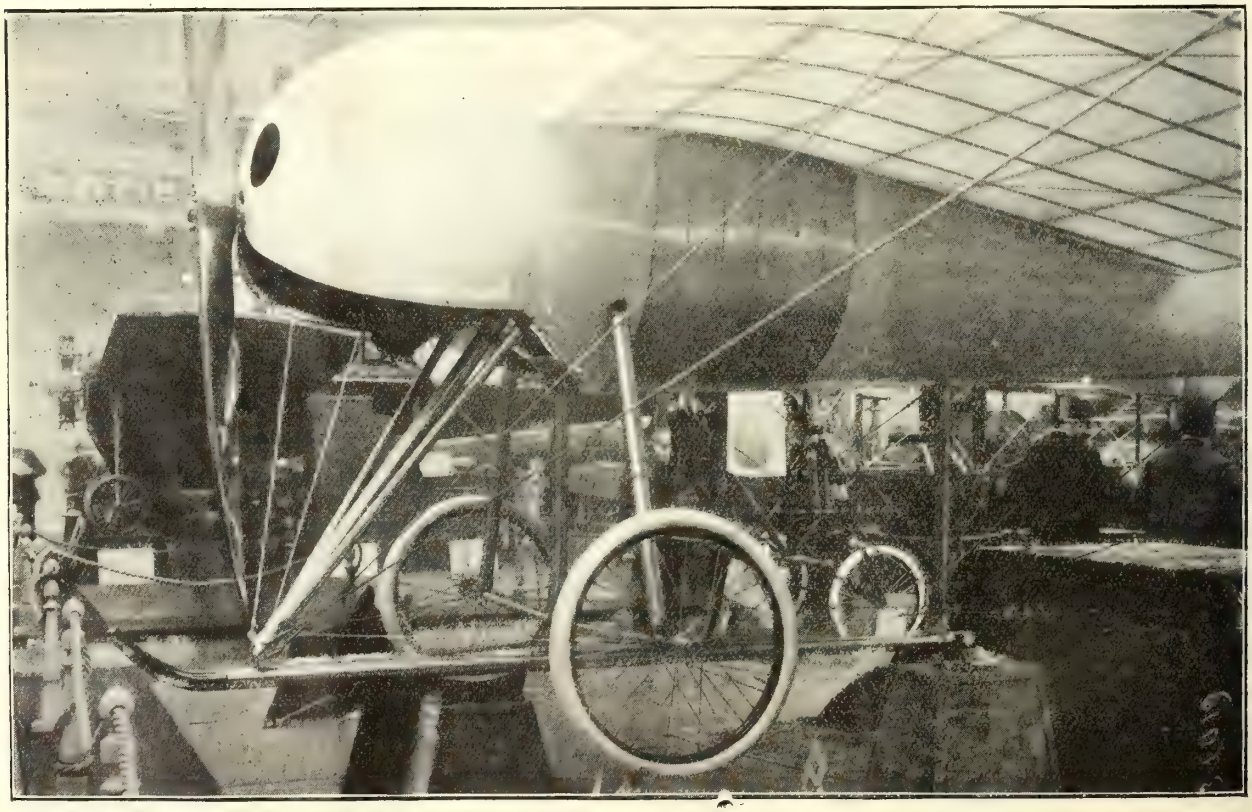
The Astra show a huge tractor hydro-biplane of the type with which Labouret won at St. Malo. It is all of steel and is fitted with a 100-h.p. 12-cylinder Renault. Though only fitted with three seats, it is capable of flying easily with five on board. The design is simple but good, and the workmanship excellent. The floats are very wide, and presumably stepped, but drapery is skilfully arranged along the sides to prevent inquisitive people from seeing the exact design.

The Blériot exhibit is naturally one of the most interesting in the show, for Blériot design is always worth studying, but on this occasion M. Blériot shows an absolute novelty in a big military torpedo monoplane. The only recognisably Blériot thing about it is the wing design, the rest is quite new. The fuselage is of circular section tapering to a point at the tail, where there is a fish-tail rudder with points above and below the tip of the fuselage. There is a big triangular fixed tail plane which extends well up towards the front of the fuselage, and finishes level with the rudder-post aft, where there are pivoted two elevator flaps, one each side of the rudder. The most original feature of the machine is the chassis, which is all built of steel tube. Under the engine, under the seats, and under the fuselage further aft are three central tubes, all running down to a huge central horizontal tube which acts more or less as a skid, and on each side are the wheels held up by telescopic tubes with pneumatic shock absorbers inside, and with their axles hinging on the big horizontal tube, something in the way used in the R.E.P., Vickers, and Handley Page. The wheels are bigger than usual, so the central portion of the skid is not likely to hit the ground, but the point has a lump of wood let into it to take the shock of a collision with a rock or a bank, and the heel, on which the machine rests when standing still, is reinforced to take the wear of dragging on the ground when landing and starting.

It is noticeable that there are only two cables to each main spar, and that these are spliced and then bound with copper-wire, and are not soldered. I am told that a wire cable fixed in this way has been proved under tests to destruction to be much stronger than a soldered cable, the heat of soldering, and the acid in the flux, weakening the thin wire of which the cables are composed

The other Blériots shown are a 50-h.p. single-seater, and a 70-h.p. tandem two-seater, similar to those belonging to Miss Trehawke Davies and to Mr. Hucks. The former machine has no particular novelty about it, but the other, which is in skeleton and without wings, has a neat little quick-firing hand-gun fitted to it. Two swivel mountings are fitted, one in front of and one behind the passenger, so that by transferring the gun from the forward swivel it can be used as a stern-chaser, and the passenger's seat is so arranged that he can sit facing either way.

A new type of fitting is the combined back-rest and belt on both these machines. The usual broad strap which is fitted as a back-rest to the seat on all Blériot machines is now carried forward so that a simple stud catch fastens it round the front of the occupant of the seat. The idea is good, and worth developing, but in its present form the belt is so narrow



The New Blériot, showing the Steel Chassis and the Armoured Belt round the Fuselage.

as to be quite capable of damaging the user's inside even if it saved his heads and legs; also, there is no elastic in it.

The Sommer exhibit is worth close attention as having several novelties. The machines shown are a biplane with a Renault engine, a complete monoplane, and a skeleton of a monoplane. The biplane is largely built of steel tubing, but the uprights between the planes are still made of wood. The chassis is new in that each of the two landing wheels is in a separate little frame, so that there is no long cross axle to get in the way, and less resistance than in the ordinary Farman four-wheel system. But it looks as if a sideways landing would wrench the wheels out sideways. The characteristic extension of the skids to meet the front elevator is now carried out in steel tube which is too nearly upright to be of any value as a skid extension—say, in case of running into a low bank, and too much curved to have its maximum efficiency simply as a tubular support for the elevator, so one can only assume that it is there simply to retain some resemblance to the original Sommer machine. Otherwise the machine is something like a small Farman, the pilot and passenger sitting in a metal-cased body in front of the lower plane. A variation from the older type is that the upper, and longer, plane is swept back to a considerable extent; presumably with the idea of giving some automatic stability. The standard of workmanship is not very high.

The monoplane is somewhat similar to last year's type, and seems very light. A distinct novelty is the variable tail, which is ingenious and should be a help to acrobatic aviators, for which reason, no doubt, one finds on the machine a label stating that it has been sold to "M. Simon,—surnommé le 'Fool Flayer.'" It may be remembered that René Simon's weird performances on a Blériot in America won him the nickname of the "Fool Flier," which M. Sommer takes to be a compliment and endeavours to transform for French pronunciation in the manner quoted. Unfortunately the flayer of fools is not quite the same thing, and is a rare being in these days when aerial acrobats are the objects of admiration rather than of reprobation, as they deserve to be.

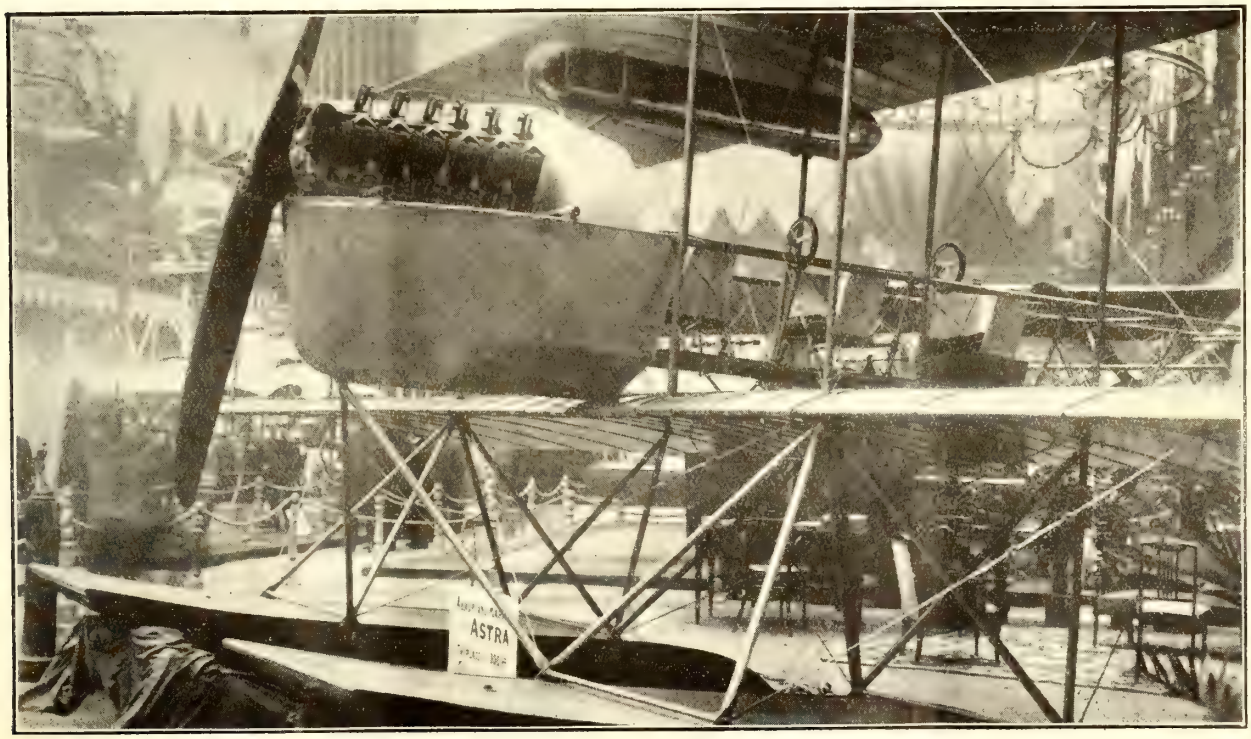
However, to resume the tail;—the control lever operates a cam mechanism as well as the ordinary elevator wires. The cam is attached to the lever pivot and on it runs a roller fixed to a steel tube which runs along the fuselage to what would be on a Blériot the fixed tail plane; but in this case the tail plane works on a tubular bearing which allows the angle of the tail to be varied by the tube operated by the cam. For small angles the ordinary tail flaps are worked by wires in the ordinary way, but past a certain point the cam comes into operation and alters the tail itself. Presumably this will make it possible to do a vertical dive and bring the machine up again at the last moment—provided nothing breaks owing to the sudden check on the machine's course—but it occurs to one that such a violent control may result in unintentional and fatal somersaults. However, to quote the famous book review, "For those who like this sort of thing, this is precisely the kind of thing they will like."

The Deperdussin Co. show on their military stand two of their famous torpedo monoplanes known as "monocoques," from the fact that the whole thing, except for a tiny chassis and cabane, is one hull without projections. The design is about the limit in the reduction of head-resistance. One of the two is the famous 140-h.p. machine on which Védrines won the Gordon-Bennett race at Chicago. The engine is entirely covered by a shield which revolves with engine, and one wonders how it keeps cool, but presumably the terrific speed at which it travels—something over 100 miles an hour—forces enough air in between the shield and the cowl to cool it.

The chassis is simply two bent wood strut members with a streamlined axle across them carrying the disc wheels and slung to the struts by rubber bands. Probably as sound and simple an arrangement as one could imagine. The wings have hardly any camber, and it seems extraordinary that such tiny things should carry the huge engine.

The other machine has an 80-h.p. engine, which is not so much cased in, but it looks almost equally wicked and speedy. Neither of them could be recommended for school work in a crowded aerodrome, but they certainly represent the last word up-to-date in rapid transit.

Sanchez-Besa, whose ordinary Voisin biplane with floats has done well at certain hydro-aeroplane meetings, seems to have got onto the wrong track altogether with his show machine. This is a steel biplane palpably of Voisin build, but almost as certainly not of Voisin design. Apparently having taken a pair of ordinary Voisin planes and a Voisin chassis, he has slung a long steel fuselage underneath them in about the same position as the boat body of the Donnet-Lévêque. At the rear end of this he has put a tail and elevator and a rudder. In the bow, about six feet in front of the planes, he has put the pilot, who has a little chassis of his own in case the machine stands on its nose when starting, as it is sure to do. Then right under the lower plane, which is cut away to receive it, is stowed a Renault engine, which drives by a chain a propeller situated just behind the upper plane, with



The Big Astra Hydro-aeroplane, with dual control, and 100-h.p. Renault Engine.

its shaft a foot or so below the plane. In this way he gets the centre of gravity and the centre of head resistance both very low, and the centre of thrust very high, so that he gets as badly balanced and as unstable a machine as possible, plus wastage of power by adding a chain drive to an engine which is already geared down in itself. Like all Voisin stuff the machine is well built, and it seems a pity to waste such good material on a design which is so ingeniously foolish. The machine is labelled as being sold to the Brazilian Government —poor things.

The Zodiac biplane is a really nice job, without being particularly novel. It is a tractor biplane of big span, with a very small chord and gap, and the upper plane staggered a long way forward of the lower. The pilot is placed practically on top of the lower plane and the observer well in front of it inside a little celluloid cabin which rises to the upper plane. The motor is about 6 feet in front of the lower plane. The chassis is very simple, consisting of a huge central skid running from the fuselage under the pilot's seat diagonally to a point under the tractor-screw, and a pair of spring-loaded wheels. The machine has evidently seen plenty of work, and it is known by sight to most people because of the popularity of a photograph taken of the machine itself by a camera fixed to the right upper wing tip, and showing the pilot and passenger in the machine and a chateau some hundreds of feet below. One wonders why more is not heard of the machine, which looks one of the most serviceable in the show.

The Nieüport firm show a 100-h.p. hydro-monoplane with big Fabre floats, which looks imposing, and has distinguished itself at several meetings. It will be remembered that one of these machines is used by the French Navy. One of the little 28-h.p. monoplanes is shown with the familiar two-cylinder opposed horizontal engine. There is also a 70-h.p. two-seater, with one wing and half the body uncovered showing the strength of the construction, which impresses one very favourably. There is a 50-h.p. "Type Militaire" with a chassis which is enough to scare an ordinary pilot cold. The usual plate-spring axle is lighter than ever, and the saving grace of a stout central skid has vanished in favour of a tiny spike of steel welded on to the chassis struts. This spike is not big enough to act as a skid, and is just big enough to hook itself into a hummock and turn the machine over. Otherwise the machines are much as last year.

M. Dartois, a newcomer, shows two original and well-finished machines which, in their design, are enough to frighten the bravest of aviators. One is a biplane very like a baby Bréguet in general outline, being built of steel with a single row of struts. The peculiarity is that the propeller is at the end of the fuselage behind everything. The 50-h.p. Gnome is placed inside the fuselage about an inch behind the pilot's spine, and drives a long shaft to the propeller, much in the way originally tried by the brothers Petre at Brooklands. The other machine is a hydro-biplane similar in general idea to the Donnet-Lévêque, but in this case the low centre of gravity is accentuated by putting the Gnome engine inside the boat—also in close proximity to the pilot's carcase. Apart from the prettiness of the work, there is nothing to recommend either machine.

The Clément Bayard exhibit is very taking. A monoplane of 50-h.p. is shown, which is very like a R.E.P. and seems a thoroughly sound job. Its qualities have been well demonstrated during the show by M. Guillaux, who has been continually flying over the Grand Palais, generally scraping the paint off the roof. There is also a steel-built tractor biplane, a three-seater of large size, in which the two passengers sit side by side in front of the pilot. The machine has a 100-h.p. Gnome under a cowl. A peculiarity is the strutting of the planes, the outer struts running diagonally from the lower wing-tip to the top of the next upright strut.

The Morane firm have three of the finest machines in the show, and have evolved several novel points. The chassis on all three machines shown is similar to that illustrated in The Aeroplane some months ago. The steel chassis uprights on each side are connected by a double straight axle of steel tubes, one behind the other. Between these two tubes is the wheel axle proper, which is hinged in the middle and strapped to the fixed axle by rubber bands, the outer ends working in slots in the outer uprights. Thus head resistance is reduced to a minimum, and yet there is a large amount of spring. The 80-h.p. machine is a two-seater with the passenger in front, and between his feet is fitted a repeating rifle pointed downwards through a hole in the floor. There is a deflector in front of the hole, so that the draught does not come up through it. As the rifle can only fire downwards one assumes that the makers of the machine expect their machine always to rise above its enemies, and considering the height record of M. Legagneux its seems likely to be so. The floor and sides round the seats are armoured with light tempered steel. There are celluloid windows, presumably non-inflammable, in the sides in front of the passenger, and there is a starting handle for the engine, within convenient reach.

A novelty in the Moranes is that the wing cables are adjusted by stout bolts in the chassis uprights, instead of by the usual wire-strainers. Also the cables are spliced and bound, instead of being sweated. Besides the 80-h.p., a 50-h.p. single-seater is shown, and a monoplane with a 70-h.p. Renault, which is the neatest piece of fitting in the show as regards putting a fixed cylinder engine into a monoplane. The finish on all the Moranes is magnificent, the cowl and fuselage being edged with polished brass strip, and the "doping" of the fabric being quite perfect. It is not surprising to find that these machines, combining, as they do, excellent design, workmanship, and finish, are very popular in the French Army.

The Caudron people show two machines, a 70-h.p. Gnome hydro-biplane, and a 50-h.p. Gnome monoplane. The former is a very good piece of work, fitted with peculiar stepped floats, in which the step is further aft than usual. Otherwise it is similar to those made familiar by Mr. Ewen at Hendon. The monoplane is also similar to the one flown by Mr. Guillaux in the Aerial Derby, but now has a chassis rather more like the Morane. Both machines seem to cause a good deal of interest, for the flexible warping rear edge eviedntly appeals to many practical men. The Caudron machine is largely used by the French Army, and its success is due solely to its merits, for M. Caudron has never been in a position to force his machines forward by sheer weight of money and influence as some firms have done.

The Hanriot machines impress one more and more favourably every time one sees them. On the Hanriot stand proper a complete monoplane is shown and another in skeleton form. he latter should be a lesson to most constructors. Many firms who could do such work would be afraid to show it lest others should learn as much as they know themselves, but apparently the Hanriot people think it better to impress possible buyers with the excellence of their construction instead of hiding it and expecting them to buy on the mere performances of the machines, irrespective of what may be inside them. The massive spars themselves give one confidence, which is increased by the method in which the wing-stays are attached. There are no holes in the spars, but strong steel straps go right round the spars, which are reinforced at the points where the stays join them. All the detail work of the machine is equally carefully thought out, and gives one an idea of great strength combined with lightness.

On a stand in a side gallery is a skeleton Hanriot built all of steel by M. Louis Clement. This also is beautifully made, the fixing of the tubular ribs to the rings which oscillate on the spars being particularly neat.

I gather that an Hanriot biplane may be seen before long, and its appearance will be interesting, for knowledge of the firm's monoplane is sufficient guarantee that the biplane will be something unusually good.

The Hanriot is one of the machines which has discarded the tail-skid as being injurious to the fuselage, and though the monoplane lands very fast, the projecting heels of the skids enable a skilful pilot to pull it up fairly quickly. Altogether it is one of the best jobs in the whole show.

The Marseillaise is the name given to a hybrid Bréguet-Tellier hydro-monoplane of weird appearance. It is hard to decide whether it is an experiment, a freak, or a revolution. On top of a huge Tellier float is a body with a single pair of Bréguet wings and a Bréguet tail. In the front is a Salmson engine of 120-h.p. lying horizontally, and driving through a bevel gear a huge four-bladed tractor. Behind the tractor and on top of the shaft is an elevator of Bréguet make. So far the machine has not floated or flown, and its experiments should be both exciting and informative.

M. Ratmanoff, who makes the famous "Normale" propellers to the designs of M. Drziewicki,—pronounced Jevetsky, as near as I can get it—shows a strange monoplane of M. Drziewicki's design. It has two pairs of wings set tandem at the ends of a long fuselage, the pilot sitting on the front and smaller pair, with the engine, a Labor, half way along the fuselage, and the propeller at the extreme end of all. In front of the propeller is a big fixed fin, and there is a rudder above the tip of each of the rear wings. The wings themselves are of unusual camber and shape, and the whole arrangement is so scientific that one must wait till it flies before one quite accepts it as a practical aeroplane. Still, M.

Ratmanoff's reputation as a practical maker of propellers gives one hopes for its success.

M. Doutre shows a Maurice Farman biplane fitted with a Doutre Stabiliser. This is a small square plate set vertically in front of the fuselage and working the elevator by an ingenious system of springs and levers. If the machine dives, its speed increases, the pressure on the plate increases, the plate is forced back, operates its mechanism, and works the elevator so that the nose of the machine comes up. If the nose of the machine goes up too far the plate comes forward and acts in a reverse manner. I am told that it is so sensitive that it operates long before the human senses can feel any tilt in the machine. Naturally, it is arranged so that the ordinary controls overcome it when used for ascending or descending. However, it only works longitudinally, and so cannot be of much practical use till it can control lateral movements as well.

M. Savary has two machines on view, or rather a machine and a half. One is his ordinary type biplane, but fitted with a Renault engine, which owing to its size and length does not make a pretty job. The old, and good, system of driving both tractors with a single chain is retained, as is the central skid and caster wheels. The pilot and passenger are now in a neat little body like that on a Caudron. The old system of blinkers at the ends of the planes to act as drag-rudders, instead of using rudders in the tail, still remains.

The half machine is one which, to quote a well-known British constructor, is not quite sure whether to develop into a biplane or fade into a monoplane. Substantially, it consists of a torpedo body with wings complete, while down among an arrangement of tubes which ought to be chassis struts and wing stays, is a tiny plane with an elevator flap behind it.

The really ingenious thing is the drive. At first one thinks the main wing spars are enormously thick, but on investigation it turns out that they are huge tubes inside which run chains driving a propeller at each extremity of the solid central portion of the wings. This portion is just wide enough to take the fuselage plus enough spar to allow the propeller tips to clear the fuselage, the propeller hubs being at the outer end of the fixed part. Beyond this portion the wings proper are bolted on. I was told that the lower plane arrangement was of no account, and that the new internal drive would probably be tried in monoplane form. Personally, it appeals to me as one of the most promising novelties in the show, and I propose to watch its development closely.

The Goupy is shown once more, this time as a large and businesslike looking hydro-biplane. As usual, it is well made, and it has been proved efficient, but there is nothing of particular note about it to call for special attention.

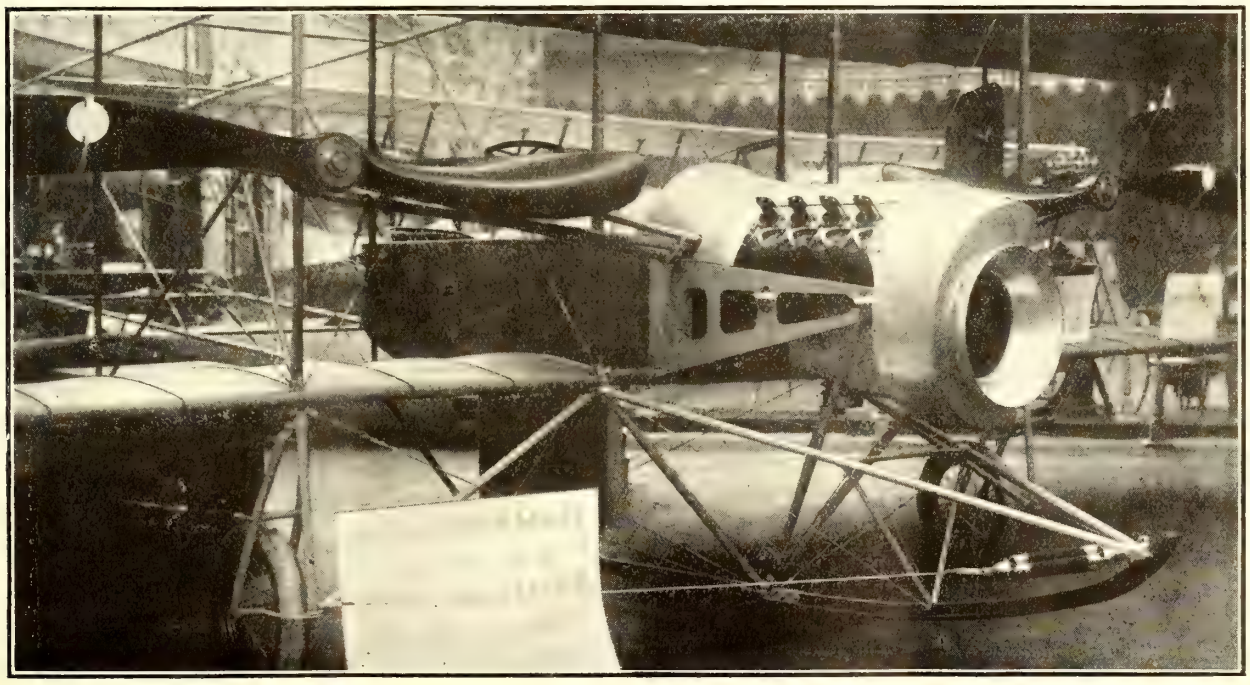
The Sloan Bicurve biplane appears once more, and one gathers that it has done a good deal of flying during the year, though little has been heard of it. Its curves seem to be gradually approximating more and more to a straight line, so that it now begins to resemble an ordinary large tractor biplane.

Two or three other machines of no particular note are shown, including a weird contraption called the "Bedelia" hydro-biplane, which has a single row of four streamline struts, each about two feet deep from front to back. It has a boat float with a chain-driven propeller high up behind the upper plane, and a long empennage which comes nearly forward to the propeller.

The Military Machines.

The machines bought for, presented to, and lent by the French Army make a brave show in the four long galleries upstairs. In one gallery are two Farmans, three Moranes, and three Deperdussins. One of the latter was presented by Mme. Bernhardt, and is christened "L'Aiglon," and another was presented by the artistes of the Chatelet Theatre. In the next gallery are a Voisin, a Train, three Nieuports, a Savary, and a Sommer. One of the Nieuports has been bought by a subscription among the readers of "Le Petit Journal" and is christened "Captain Camine," in memory of a dead officer-aviator. The next batch consists of a Rep, an Hanriot, two Maurice Farmans, and a Caudron. These bear such names as "Valmy," and "Robert le Fort," and have been presented by the Duchesse de Chartres, M. Staehling, and the town of Nancy. The last lot are two Bréguets, three Blériots (two singles and a tandem), and two Borels, and among the donors are the "Depêche Coloniale," and the retired military engineers of Lille.

This gives one some idea of what patriotism means in France. It is as if, for example, Mrs. Patrick Campbell, the performers at His Majesty's Theatre, the readers of the "Globe," the Duchess of Marlborough, Mr. Beit, the city of Birmingham, the readers of "The Overseas Mail," and the members of the Cavalry Club, had given orders to Messrs. Vickers, Mr. Roe, the Bristol Co., the British Deperdussin Co., the British Bréguet Co., Mr. Sopwith, and Mr. Grahame-White, had christened the machines with such memorable and inspiring names as Drake, Captain Loraine, Crecy, and King Alfred, and presented them to the Royal Flying Corps. I can assure my readers that both the Flying Corps and the British manufacturers would be equally grateful for such action. But then, we are a business people who would despise such things as silly and theatrical, so we wait till dire necessity forces the War Office to buy—or build—



The Savary Biplane with the 70-h.p. Renault Engine.

machine itself and then cry out on our Chancellor of the Exchequer as a robber when the permanent officials of the Treasury insist on raising money for national defence as well as for social improvements. What a miserable mean lot of hypocrites we are in this country.

Transport.

It is to be hoped that those British officers who visited the show sent in full and explicit reports of the exhibition of transport vehicles lent by the French Army. There were half a dozen Delahaye cars, each with a two-wheeled trailer attached, these trailers being specially designed to take monoplanes, though there are other types for biplanes, which are not shown. There is also a six-seater car for the officers of the "escadrille." These are all very pretty in their way, but similar vehicles could be produced even in this country at short notice. The real cream of this exhibit is the section devoted to repair wagons. Four of them are shown, with all their internal economy open for the world to imitate. As one of our officer-aviators cuttingly remarked, "one of these wagons is more fully equipped for aeroplane work than the whole of the British Industry, except the Royal Aircraft Factory." This is, of course, more or less poetic licence, but it is literally true that one of these wagons contains more machinery and tools for repair work than all the aeroplane sheds at Upavon, Lark Hill, Hendon, Brooklands, and the other aerodromes put together, always excepting those which are definitely aeroplane factories. In one wagon is a really up-to-date lathe, a drilling machine, a grinding machine, a forge, an acetylene welding equipment, two or three really good large parallel vices and a stock of dies, taps, reamers, drifts, drills, files, and so forth, of all sorts and sizes, which would frighten any aeroplane owner who had to buy a similar equipment for his school. The machinery in each wagon is driven by the motor which propels the machine itself, and the motor also supplies electric light, so that work can go on all night when the machine is at rest.

One of these wagons has a special case for spare wings which lies flat on the roof. When it is wished to get a wing out of the case, the whole case can be rolled off the roof and hung along the side of the wagon by simply turning a handle.

Nothing is so convincing of the lead France has in military aviation over all other countries as this display of transport arrangements, and we ought to be really grateful to her for giving us such facilities for seeing how it is done. Of course, the spies of all countries report to their employers exactly what others are doing, so after all it is much more businesslike to play the game with all the cards on the table, especially when one holds all the trumps.

The Week-End at Hendon.

Saturday was a bright but bitterly cold day, with perfect conditions for flying. Shortly after one o'clock Mr. Pickles left for Brooklands on the 60-h.p. Anzani-Caudron biplane, with Lieut. Noel as passenger. At the same time Mr Hall also flew to Brooklands on his Gnome-Blériot monoplane. Both aeroplanes returned to Hendon shortly after three o'clock. From half-past two o'clock until half-past three Mr. Gates and Mr. Noel were engaged taking passengers for brief flights on the 70 h.p. Gnome-engined Farman biplane. Mr. Lewis Turner made several circuits on the 50 h.p. Gnome-Grahame-White biplane, as also did M. Dessoutter on the old Gordon-Bennett Blériot monoplane.

The only competition of the day was a speed handicap, which began at 3.30. In the first heat were Mr. Noel (80 h.p. Gnome-Farman), Mr. Hall (50 h.p. Gnome-Blériot), and Mr. Lewis Turner (50 h.p. Gnome-Grahame-White), in which order the competitors finished. Messrs. Noel and Hall were, however, disqualified for passing beneath Mr. Turner within the specified distance. Mr. Turner was therefore declared the winner of the heat.

In the second heat were M. Desoutter (50-h.p. Gnome-Blériot), Mr. Gates (70 h.p. Gnome-Farman), and Mr. Pickles (60-h.p. Anzani-Caudron biplane), in which order they finished.

Messrs. Gates, Dessoutter, and Turner flew in the final with M. Dessoutter an easy winner, Mr. Gates second, and Mr. Turner third.

After the racing flying was continued until dark.

Motor Sunday at Hendon.

The rapid advance since Wilbur Wright's first flight with a petrol motor in 1903 is sufficient to indicate the great debt that aviation owes to the motor car industry. The forthcoming Motor Show at Olympia, which opens on Friday next, the 8th inst., will be in itself a striking example of the wonderful strides made with the petrol motor vehicle, and the day is not far ahead when similar success will have attended aviation.

In view of the recognition of the co-operation that has been extended by the automobile industry to the advancement of aviation, Mr. Claude Grahame-White, and the directors of the London Aerodrome at Hendon, have invited the whole of the members of the Society of Motor Manufacturers who are exhibiting at Olympia to attend a special series of exhibition flights and tests by well-known aviators at the Aerodrome on Sunday afternoon next (November 10), when it is anticipated that many hundreds of motor cars will be present.

An Accident to the Handley-Page Monoplane.

A slight accident occurred last Thursday to the Handley-Page monoplane (50 h.p. Gnome), whilst Mr. Desmond Arthur was piloting it. There was a wind blowing of 20 miles an hour. After several successful circuits Mr. Arthur was brought down near the railings. In order to avoid hitting the railings he overbanked the machine in turning, and came down on one wing tip, breaking one wing and the propeller, and buckling a wheel of the landing chassis. The machine will be flying again in a day or two, and is nothing like so badly damaged as has been reported by popular and interested gossip.

The Newest Willows Dirigible.

On Friday of last week the Willows dirigible, ordered for the Navy, made its first proper trial trip at Farnborough. Mr. Willows made an ascent with a passenger about half an hour before dusk, and found everything satisfactory, and the ship perfectly stable with its new planes. The wind was 14 m.p.h. at the height of the shed. He had just circled to come over the landing party when the motor stopped dead. He tried to restart, and found no petrol at the carburetter. As they were on the edge of common with the wind north-west, they immediately drifted over Farnborough, but got the trail rope and grapnel down, and made a landing in a part of sewage farm without discomfort, owing to watertight body. By this time it was nearly dark. On investigating the trouble it was found that the petrol tank was empty. So they had to wait for a car to fetch petrol, and an electric light to see instruments with. The searchlight at the factory was put on as a guide. On starting off in the dark someone must have fouled the rudder wires where they leave the body, as when Mr. Willows attempted to use the rudder he found the wires off the drum, and so stopped the engine, let down the rope and grapnel, and landed three fields farther back. Here he put the rudder wires right and started off again. This time everything went well, and they had a very pleasant trip back to the common, where they made a nice landing. Everybody was very pleased, and thought it a very good effort for a new ship. The machine looks very well now. The tail is quite horizontal, as also is the nose. Some of the early photographs taken when she was first brought out of the shed, and before the rigging was adjusted, make her look rather a queer shape fore and aft.

The Deperdussin Move.

In consequence of the rapid extension of their business The British Deperdussin Aeroplane Co., Ltd., have been compelled to take more commodious offices, and the new address for the registered office of the company is now 39, Victoria Street, Westminster, S.W.

Mr. H. Hurlin, whose name is well known as the originator of the W.H.C. models, and in connection with a successful sale and exchange business, is now in charge of the Deperdussin School at Hendon.

The Aeronautical Society.

The first general meeting of the Society for this session will be held on Wednesday, November 13th, at 8.30 p.m., at the Royal United Services Institution, Whitehall, when Mr. A. E. Berriman, A.F.Ae.S., will read a short paper, to be followed by a discussion on "Aeroplanes in the Light of the Military Trials." Leading constructors, military officers, and others have promised to attend. The second meeting will be held on Wednesday, November 27th, at 8.30 p.m., when Brigadier-Gen. F. G. Stone, R.A., will read a paper on "Aircraft as Targets for the Artillery."—Bertram G. Cooper, Sec.

A New School at Hendon.

The Jameson Flying School was officially opened at Hendon recently, and the first pupil, Mr. G. L. Temple, who is well known among racing motor cyclists, received instruction in the hangar before going out on the school Blériot for practice.

The Week's Work.

MONDAY, October 28th.

Hendon.—At W. H. Ewen School.—Mr. N. E. Cowling being initiated in working of controls.

At Deperdussin School.—Wind and rain prevented any work outside sheds.

Salisbury Plain (Bristol School).—High wind all day prevented flying.

TUESDAY, October 29th.

Hendon.—At W. H. Ewen School, pupils still unable to fly on account of weather, but busy in hangars at erection of new Caudron.

Salisbury Plain (Bristol School).—No improvement in weather. Pupils and staff at work on machines in sheds.

WEDNESDAY, October 30th.

Salisbury Plain (Bristol School).—Very gusty and stormy. Mr. Pizey for trial, afterwards taking Lieut. McArthur. With slight improvement in conditions, Lieut. McArthur passed tests for second part of certificate. Capt. Williams also out.

Brooklands.—Bristol School. Mr. Merriam testing after rain had ceased, but too bad for school work, as on two previous days.

THURSDAY, October 31st.

Hendon.—Deperdussin School. Messrs. Whitehouse and Hooper short flights on "Dep. 3," but decent weather not lasting enough to permit longer than half-hour practices.

Salisbury Plain (Bristol School).—Mr. England out for only flight, but weather too bad for sustained flying.

FRIDAY, November 1st.

Hendon.—At Grahame-White School, work started at 6.50 a.m. with Mr. Lewis Turner giving instruction on No. 5 Grahame-White biplane, Mr. Howard-Wright taking instruction on No. 7 Grahame-White biplane with Mr. Turner, and afterwards rolling. Mr. Francis rolling and good straights. Later in day Instructor L. Noel took pupils on No. 7; Mr. Howard-Wright and Lieut. Birch good straights; Mr. Francis rolling; Major Liles doing fine circuits, and Major Madocks and Mr. Carr also good practice with instructor.

At W. H. Ewen School, work commenced 7.30 a.m. Under instruction of M. Baumann, Lieut. M. W. Noel and Messrs. M. Zubiaga, R. S. McGregor, and E. T. Prosser were doing excellent straights on No. 1 monoplane. Mr. Sydney Pickles had out 60-h.p. Caudron, and after fine exhibition, gave passenger flights to Messrs. M. Zubiaga and M. Baumann. In afternoon again out with 60-h.p. two-seater, and gave cross-country passenger flight of 25 minutes to Mr. Sparrow, reaching 1,200 ft., and finishing with beautiful spiral glide. Passenger flights also given to Lieut. Moxley and Messrs. E. T. Prosser and N. E. Cowling. M. Baumann again had Messrs. Zubiaga, Prosser, McGregor and Lieut. Noel, making good progress on No. 1 monoplane, while Lieut. McMullen and Mr. L. Russell were flying on No. 2 monoplane. Lieut. Moxly and Mr. N. E. Cowling rolling and straights.

At Bleriot School.—Messrs. Gandillon and Gratien in morning doing straights. In afternoon Mr. Seymour Metford took machine up to test after tuning up, and was flying well at 300 ft. Then handed over to M. Gratien, who did circuits at 70 ft., landing well. Mr. Sacchi straights on L.B. 2.

At Blackburn School.—Mr. H. Blackburn on brevet machine at 4.5 p.m., and made test flight of 10 minutes, after which Messrs. Buss, Glew, and Lawrence Spink practising.

At Deperdussin School, Mr. Mapplebeck on No. 3 straights. Mr. Hooper next up, but got off quickly and attained considerable height, which allowed him no time to finish straight flight inside aerodrome. So to prevent hitting fence he jumped the machine over it, but found trees in his way. In trying to turn he side-slipped, and, just grazing fence top came to earth heavily, breaking one wing and demolishing landing chassis. In evening Instructor Brock took No. 4 for circuits.

Eastchurch.—No flying on Monday, Tuesday, Wednesday, or Thursday. Weather much too boisterous.

This afternoon biplane S.38 was out; Commander Samson, Lieut. Parke, Lieut. Seddon, and Paymaster Berne, R.N., all making flights. Biplane S.34 also out, Captain Gordon, R.M.L.I., instructing Naval pupils. Lieut. Spencer Grey, R.N., flying Deperdussin monoplane.

Salisbury Plain (Bristol School).—Capt. Williams and Mr. Gray passed brevet tests. Mr. Sippe made fine flight on school tandem monoplane for his first trip in Bristol. Mr. Busteed on Prince Cantacuzene's. Mr. England out on tandem. Mr. Pixton several circuits in the prince's monoplane. Mr. Busteed out in afternoon in a new monoplane. Mr. Harrison out with prospective pupil. Mr. Pixton and Mr. England flying.

Liverpool.—Waterloo.—Mr. Melly on two-seater doing figures of 8, in three flights. Mr. Birch then took out "Y" type and flew three miles to Hightown, returning at 1,500 ft., where he did figure of 8 before planing down. Mr. Melly then took over and did succession of figure 8's, banking heavily at turns. Afterwards Mr. Birch again did figure 8's, and rising to 1,000 ft. did magnificient spiral glide.

R.F.C. (Central Flying School).—Very light mist early, calm, frosty. Fresh westerly wind during day. On Avro 406 Capt. Salmond two 5 mins. with Petty Officer Andrews on practice ground 60 mins., with Lieut. Martyn 20 mins., with Leading Seaman Bateman on practice ground 40 mins., Air-Mechanic Higginbottom 10 and 5 mins. On Avro 404, Lieut. Waldron 25 and 45 mins., splendid flying over Salisbury; Lieut. Smith-Barry 20 and 25 mins. over Lark Hill. On Short tractor 413, Major Gerrard, R.M.L.I., with Lieut. Shepherd 21 mins., with Lieut. Prickett 14 mins., with Capt. Risk 22 mins., with Sergt. Rigby 14 mins.; Lieut. Shepherd 10 mins.; Capt. Risk 6 mins.

Brooklands.—Vickers School. In morning Mr. Knight for test on No. 3 then handed over to Capt. Stott, who did excellent straights and curves. In afternoon Mr. Barnwell on No. 5 for circuits about 1,000 feet up, then handed over to Mr. Joubert de la Ferté who did beautiful flight with right and left hand turns. Mr. Barnwell then out on No. 3 for test, followed by Capt. Stott who put in some good curves and was landing very well. Mr. Knight also out on No. 5.

At Bristol School.—Mr. Merriam testing new biplane. Mr. Bendall taking up Lieut. MacLean, Lieut. Boyle alone, Major Forman with Mr. Merriam. Mr. Merriam with Lieut. Kitson and latter alone. Mr. Bendall with Lieut. Rodwell and Lieut. MacLean. In afternoon Mr. Merriam took up Lieut. MacLean. Mr. Bendall with Lieut. MacLean. Lieut. Boyle and Major Forman alone.

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50-h.p. Gnome AVRO Biplane
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FLYING SPEED - - - - 40-61 m.p.h.
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AVRO

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Monoplanes - Speed
Biplanes - - Stability
Hydro-Aeroplanes
(combined wheels and floats).

W. H. EWEN, HENDON AERODROME.

SOLE AGENT FOR BRITAIN AND COLONIES.

SATURDAY, November 2nd.

Hendon.—Grahame-White School. School started under instruction of Mr. Turner, who at 7.50 took Major Madocks on No. 7, Major Madocks afterwards rolling. Mr. Howard-Wright straights, Lieut. Birch rolling and hopping. Major Liles, Major Madocks, and Mr. Francis straights. Later Mr. Turner took Lieut. Birch for a passenger flight. At 4.45 Mr. L. Noel made a cross-country flight.

At W. H. Ewen School.—Pupils out at 7.15 a.m. when Mr. Sydney Pickles gave passenger flights to several pupils and others. M. Baumann putting in good work with pupils on monoplanes 1 and 2. Lieut. McMullen and Messrs. L. Russell and W. Warren making nice straights and half circuits with good landings on monoplane No. 2. Lieut. M. W. Noel and Messrs. Zubiaga and Cowling rolling on No. 1. After breakfast pupils again out. At noon Mr. Sydney Pickles accompanied by Lieut. M. W. Noel as passenger started out for Brooklands, arriving there at 12.20 p.m. on 60-h.p. Caudron. Brooklands reached at 4,000 feet. After lunch there, Mr. Sydney Pickles gave exhibition flight before returning with Lieut. Noel to Hendon. The return trip made average of 3,000 feet. Lieut. Noel kept log of double trip.

At Bleriot School.—M. Gratien circuits and good figures of eight at about 80 feet. Mr. Reilly straights on No. 3. Mr. Sacchi straights on L.B.2., but misjudged speed of machine and, in spite of Mr. Metford tackling aeroplane in Rugby style round the fuselage, charged enclosure railings, fortunately without much damage—propeller by some miracle escaping injury.

At Blackburn School.—Test by Mr. H. Blackburn, after which Messrs. Lawrence Spink, Buss, and Glew straights for an hour, all three making good progress.

At Deperdussin School.—Capt. Macdonell good flights on Taxi No. 2, splendid landings, but eventually got too near to pylon and came down after slight collision, only strained wires and shifted wing, proving stout construction of "Dep." planes.

Eastchurch.—Early morning, Short biplane S.34 out and Capt. Gordon, R.M.L.I., giving instructional flights to E.R.A.'s Susans and Freeman, also Shipwright Edwards. Forenoon: Biplane S.38 out, Paymaster Berne, R.N., and Lieut. Courtney, R.N., making flights. Commander Samson, R.N., out on Short triple twin biplane, taking up Lieut. Seddon, R.N., afterwards Lt. Seddon, R.N., on the same machine by himself. The Deperdussin monoplane also out, piloted by Lieut. Spencer Grey, R.N. Afternoon: Lieut. Seddon again out on Short triple twin and flew over Sheerness at 4,000 feet. Biplane S.38 out; and flights made by Lieut. Courtney, R.N., and Paymaster Berne, R.N. School biplane S.34 was out; Lieut. Courtney, R.N., and Electrician Deakin flying, afterwards Leading Seaman Russell doing straights and several figures of eight. Lieut. Grey, R.N., was out again on the Deperdussin.

Salisbury Plain (Bristol School).—No flying in morning, weather too bad. Mr. Harrison out later on tandem, and Prince Cantacuzène then for cross-country flight in another for over an hour at 3,000 feet and landing with a splendid glide. Mr. England out on monoplane. Mr. Busteed testing with Mr. England as passenger.

R.F.C. (Central Flying School).—Fine, clear, calm, frosty. Fresh north-west wind during day. On Avro 404, Capt. Salmond with Air Mechanic Hodgson on practice ground 40 mins., with Lieut. Hubbard 5 mins. and 5 mins alone.

Brooklands.—At Vickers School, in morning, Mr. Knight out on No. 3 followed by Capt. Stott, who showed still greater improvement. Mr. Knight then on No. 5 followed by Mr. Joubert de la Ferté, who put in beautiful flight. Mr. Barnwell then on No. 5 and did usual pretty flights. In evening Mr. Barnwell on No. 5 up to 3,500 feet, finishing with a beautiful spiral glide. Mr. Joubert de la Ferté then out for excellent circuits with right and left hand turns. Mr. Barnwell out again on No. 5 up to 5,000 feet, going over Weybridge and surrounding country. Mr. Joubert de la Ferté out again for excellent circuits, followed by Mr. Knight, who did pretty flight.

At Bristol School.—Mr. Merriam and Mr. Bendall testing; Lieuts. Kitson and Rodwell circuits. Last-named did "pancake" from 10 ft., smashing two stanchons and propeller. Major Forman turns; Lieut. Boyle went for his brevet, which he took in very excellent style and landing each test nearly on top of observers. Mr. Merriam then took Mr. Robert Lloyd (new pupil) to 2,000 ft., and making a spiral descent, thus finishing the morning's work. In afternoon Mr. Merriam with Lieut. MacLean, Mr. Bendall with Mr. Lloyd, Major Forman, Lieut. Rodwell alone, Messrs. Merriam and Bendall in competition. In afternoon a fair number of spectators present. At 12.15 p.m. Mr. Sydney Pickles arrived from Hendon with passenger, returning at 2.45 p.m. Ten minutes after his arrival Mr. J. L. Hall arrived from Hendon on Blériot, returning at about three. In bomb-dropping and alighting competition there were five starters, the result being:—1st, Mr. Pashley, Sommer biplane; 2nd, Mr. Spencer, Spencer biplane.

SUNDAY, November 3rd.

Hendon.—Grahame-White School.—Very busy. At 9.30 a.m., Mr. L. Noel instruction to Mr. Howard-Wright, Major Madocks, Lieut. Birch, Mr. Francis and Mr. Carr. All had straight practice. Weather rather foggy. Machine used Grahame-White No. 7, 50 h.p. In afternoon Mr. L. Noel gave graceful exhibition flights and several passenger flights on Grahame-White biplane, "Wake-up, England," 70 h.p. Mr. R. T. Gates also exhibition flight for 25 mins. on 50-h.p. Grahame-White biplane No. 5. He also took up several passengers on 70-h.p. Farman biplane. Mr. L. Turner very good exhibition flights, making some fine curves, Grahame-White biplane No. 5. Exhibition flights also given by M. Desoutter on 50-h.p. Blériot.

At W. H. Ewen's School.—Pupils out at 9.30 a.m., when Mr. Sydney Pickles commenced work, after which several passenger flights were given on 60-h.p. two-seater Caudron. Under instruction of M. Baumann, Lieut. McMullen and Messrs. L. Russell and M. Lawford doing nice straights and half-circuits at 30 ft. on monoplanes Nos. 1 and 2. In the afternoon, M. Galy made an exhibition flight and Mr. Sydney Pickles gave passenger flights, including cross-country trip to Mr. Phillips, in which he reached 2,000 ft. and finished with beautiful spiral.

At Blackburn School.—After test flight by Mr. H. Blackburn, Messrs. Glew, Lawrence Spink and Buss doing straights.

Eastchurch.—Nothing doing in morning, but in afternoon Mr. Jezzi out on biplane, making several flights.

Brooklands.—At Vickers School, in morning, Mr. Barnwell first out on No. 5 for circuits, then handed over machine to Capt. Stott, who, having done some excellent straights, went up and did two beautiful circuits. Mr. Joubert de la Ferté up to 1,000 ft., and put in some excellent circuits, ending with a very pretty glide. Mr. Knight then out for some good circuits. In afternoon Mr. Barnwell first out on No. 5 for one of usual pretty flights, which are becoming one of features of flying here, then handed over machine to Mr. Joubert de la Ferté, who also did very good circuits. Machine then handed over to Capt. Stott, who put up an excellent show, flying circuits with right and left hand turns and finishing with beautifully timed glide. Mr. Knight then out on No. 3, and handed over to Mr. Soames, who did some very good straight lines.

At Bristol School.—Mr. Bendall and Mr. Merriam exhibition flying; Lieut. Rodwell circuits; Major Forman left and right turns, but had misfortune to side-slip, smashing the machine rather badly, but fortunately without injury to himself. Messrs. Merriam and Bendall up with Mr. Loyd and Lieut. McLean.

There was an excellent attendance of spectators. The weather conditions were ideal for flying. For the speed handicap, in which the competitors made a round of three circuits (about 4½ miles), the following was the result:—1st, Mr. Merriam, Bristol biplane; 2nd, Mr. Spencer, Spencer biplane.

Nomenclature.

The latest necessity in aeroplane nomenclature is a proper name for an aeroplane which can be flown off and onto either water or land. Mr. Frank McClean, ever scientific, says that the correct name is "hydrogeoaeroplane," which seems a trifle cumbersome, so someone has suggested "hydrogee" is a handy abbreviation. It somehow suggests a sea horse, and it might even be a pet name for a hippopotamus. One might suggest that as "Amphibian" means an animal that lives both on land and water, "tribian" would be a handy word for a machine using all three elements.

Ulster and Aviation.

It is rumoured that Sir Edward Carson is at the moment considering a scheme whereby he may use aeroplanes to protect Ulster against the expected ravages of rampant Home Rulers. Details of this plan are not available for publication at the moment, but who knows but that after the civil commotion (?) it may mean the establishment in Ireland of a new industry, of which Mr. Harry Ferguson was the pioneer.

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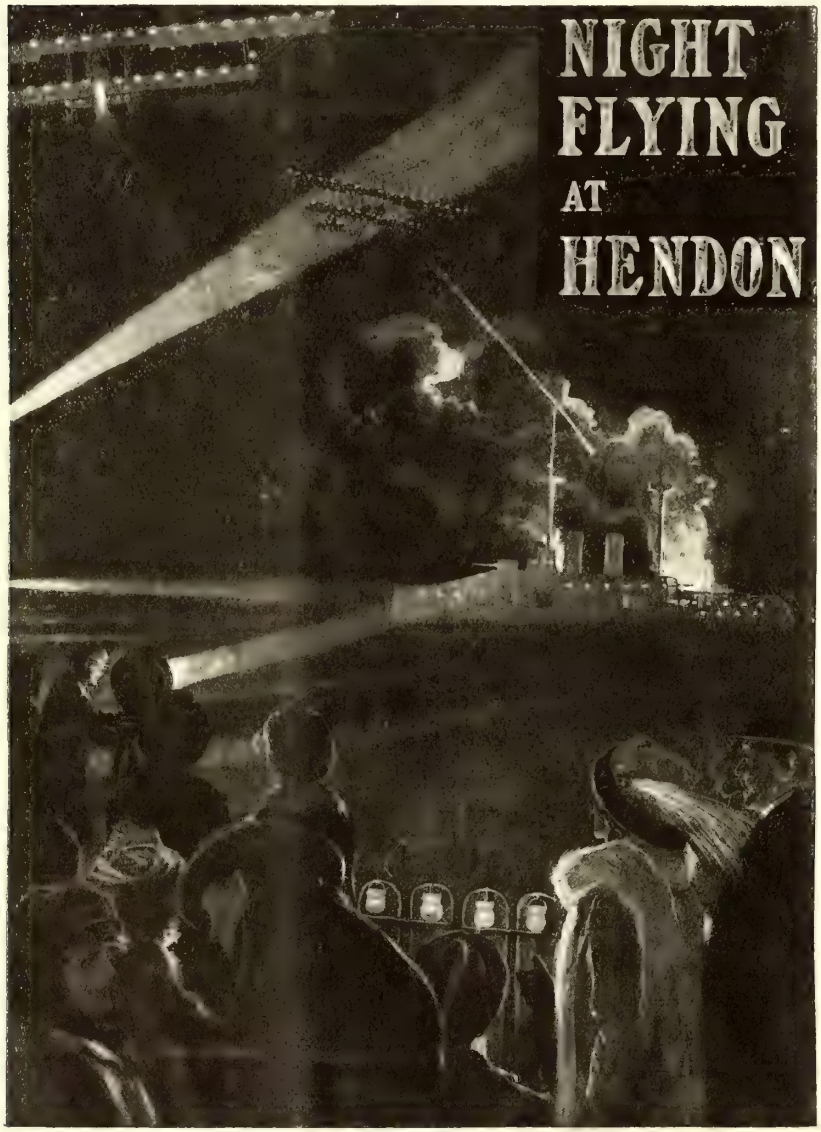
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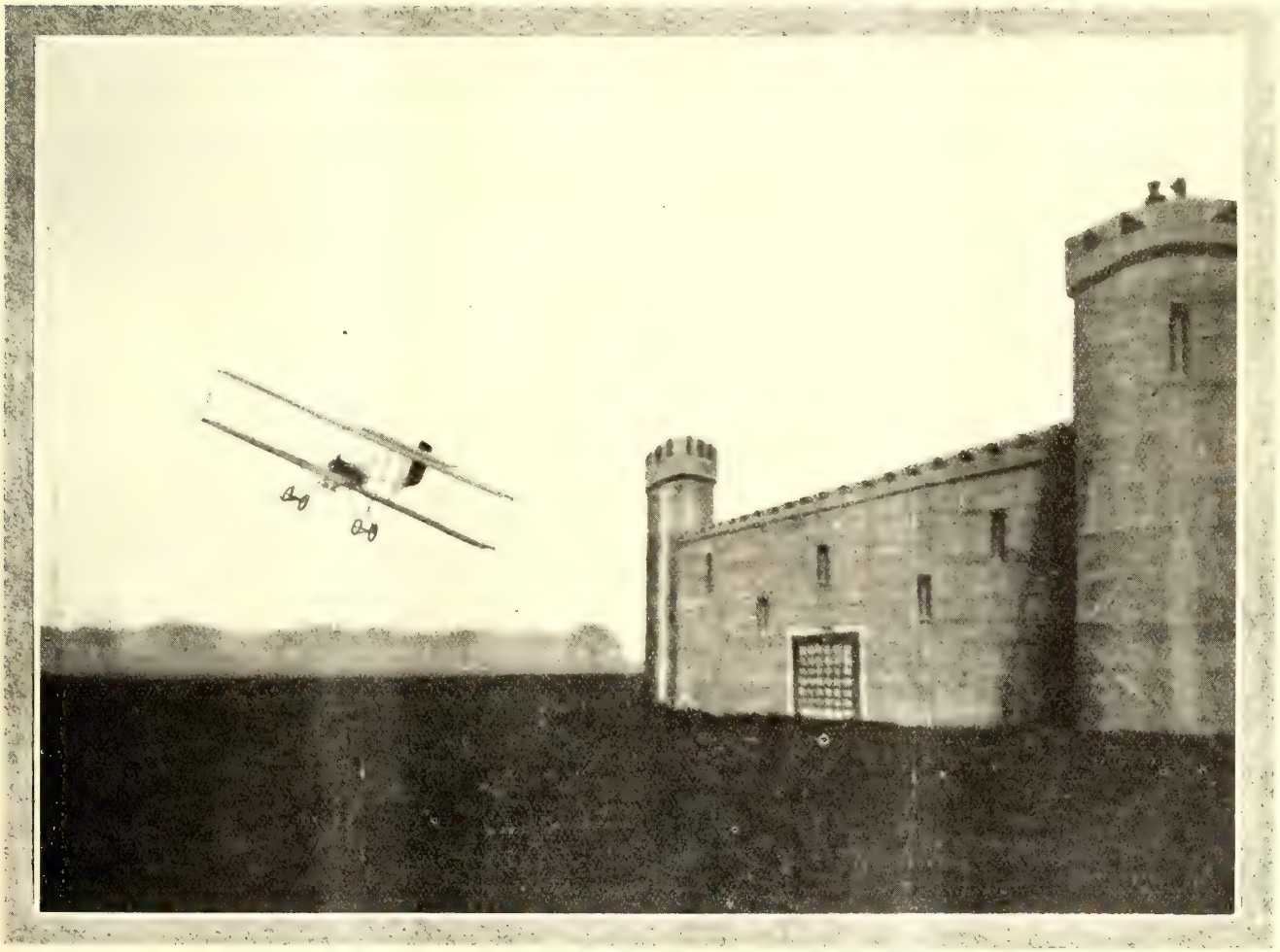
THE AEROPLANE

1D WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, NOVEMBER 14, 1912. No. 20.

THE GATES.



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The Report of the Military Competition.—*(Continued)*

The portion of the report of the Judges' Committee quoted last week consisted entirely of general remarks on the competition as such. The following portion has to do with each machine individually, and it will be noticed how very thoroughly the Judges have studied and appreciated each machine. The first machine considered is, naturally, the winner, Mr. Cody's big biplane. Thus the report :—

The Cody biplane is a heavy machine, strongly and somewhat roughly constructed. In range of speed (a variation of 24 miles an hour between maximum and minimum flying speed) and in the field of view afforded to pilot and observer, it excelled all other competitors, its nearest rival in these respects being the Maurice Farman. A remarkable feature is the combination of a speed of over 72 miles an hour with the power of stopping, after landing, in 56 yards. The powerful engine seemed to work satisfactorily. The pilot can start the engine from his seat, or, if that device should fail, is able, by throttling the engine, to swing the propeller and clamber into his place while the aeroplane stands still with the engine running.

Mr. Cody achieved all the tests without difficulty. The Judges formed the impression that the machine had not been pressed to the utmost, and that some of the results might possibly have been improved on. On the results obtained, however, this machine was easily first.

[It is natural that the machine should be somewhat roughly constructed, having been made as it was in a small shed on Laffan's Plain by the Cody family, but "roughly" in this case is obviously not intended to depreciate the machine, for which the Judges had a great admiration. The roughness consists chiefly in details of metal work, for the plane surfaces were probably the best among the machines in the competition, and the surface of the streamlined struts was excellent. The machine's range of speed and faculty of stopping quickly is due to several qualities. Firstly, the enormous reserve of power in the 120-h.p. engine makes it possible to force the machine through the air at considerably more than its natural flying speed. Secondly, the fact that all the horizontal surface is carrying surface and none of it merely stabilising or "damping" surface makes it possible to fly at a very great variation of angle. And thirdly, the big surface, combined with this variability of angle, makes it possible to "pancake" to an extent which would be impossible on practically any other machine. As the Judges note, the machine was never pressed to its utmost, and it could easily have added several miles an hour to its observed speed, and could have climbed very much more steeply.

The really humorous part of the competition is that but for his inadvertently landing his monoplane on a cow, Mr. Cody would not have flown the biplane in the competition. He himself now says that with the monoplane he would not have won, because though the monoplane was much faster it would not have landed so slowly, it would not have had as great a range of speed, and it would not have given as good a view. When he designed the monoplane Mr. Cody thought that the authorities wanted speed above everything, and he sacrificed to speed the very qualities which eventually won him £5,000. So the suicidal cow was apparently worth £5,000 to Mr. Cody.

The Judges are obviously correct in their assumption that the machine was not pressed to the utmost, for Mr. Cody never has his engine running all out for more than a few minutes, and though his climbing speed was 285 per minute he did not force the machine up, but let her take her natural angle, in view of the fact there was still three hours' flying to be done.]

The Deperdussin monoplane (French) is a well-designed and well-constructed aeroplane of a type of general usefulness. The speed test was somewhat affected by a difficult wind, and an allowance is due to both speed and range for this reason. This aeroplane was the first to finish all the tests, which were attacked without regard to favourable conditions of weather, a method of procedure which impressed the Judges as implying a certain confidence in the stability and airworthy qualities of the machine.

The observer is seated behind the pilot and, speaking generally, owing to his position in relation to the wings, a better view is obtainable by him from this monoplane than from most others of similar type.

The controls are well designed and good.

Making due allowance for the exceptional skill of its pilot, the Deperdussin monoplane gave the impression of being unusually stable and easy to handle in the air. The landing chassis does not seem very strong, but the machine landed on and rose from hard or soft ground with equal facility.

[It will be noticed that the style in which M. Prévost took the Deperdussin through the trials regardless of weather was not without effect, as the writer ventured to suggest at the time. No matter how good a pilot may be he will not go through as M. Prévost did without knowing and believing in his machine. It must be remembered that this same machine, then arranged as a three-seater with the pilot behind, had already gone through the French trial almost a year before, and had, therefore, been thoroughly tested. It is somewhat peculiar that the re-arrangement of the seats, which placed the observer behind, was one of the most important factors in winning second place for this machine. The Judges' note as to the chassis is worth special attention. The Deperdussin chassis certainly does look light, but the writer gathers that it is purposely designed so that though quite strong enough to stand any possible flying strain, it is not so solid as to be stronger than the rest of the machine, the idea being that in case of a really bad landing it is cheaper to smash up the chassis, which is so fitted as to be easily replaced, and let it act as a buffer for the fuselage and wings.]

The Hanriot is a well-constructed and highly standardised aeroplane, designed largely for speed. It has a rather small

wing area. The two machines entered are practically identical, and attained the highest speed of any aeroplane in the competition. The range of speed obtained by No. 1 appeared to be at the expense of safety, for the aeroplane was unstable at slow speed. These machines, although steady enough when in the air, appeared to be somewhat difficult to land, and both of them exceeded the specified limit of 75 yards in their run after touching the ground.

The discomfort caused by propeller draught is very noticeable to the observer, and the view is limited.

[The fate of the Hanriots has caused more debate than anything else in the competition. Their performance throughout was magnificent, and, allowing for slight differences in weather at the times the two machines did their tests, their figures for each test were almost identical. The bigger range of speed of No. 1 was certainly due to the fact that M. Bielovucic ventured nearer the edge of safety in slowing down than Mr. Sippe did, which rather goes to prove the sense of the latter in knowing when he had gone far enough. Naturally with a highly efficient machine—that is, one carrying a big load for a small surface—there is not the range of speed possible with a bigger surface with which the angle of attack can be varied to a greater extent. Undoubtedly what weighed most with the Judges was the high speed at which the Hanriots landed, this being thought dangerous for any but the most expert pilots in a country such as this which consists so largely of small cultivated fields.

One is apt to be misled by the fact that the Cody machine with 120 h.p. flew nearly as fast and landed much more slowly than the Hanriots with 100 h.p., but one must remember that the former really had 120 h.p., whereas the latter probably had nearer 80 h.p. Consequently the Cody could be forced along very fast though her natural speed is much slower, whereas the Hanriot must fly fast to carry her load at all. The latter is more economical of power, but economy of this sort finds no place in military equipment, hence the result. When the less open view and the propeller draught are added to the speed of landing, these three points were sufficient to place the Hanriot third and so lose a prize. It is regrettable, but it cannot be helped.

At the same time one cannot at all understand why several single-seater Hanriots have not been ordered to be built in England for the Royal Flying Corps. It is true that we have at present very few military pilots capable of flying really high speed machines, but it is also true that we must perforce have a large number of small, light, very fast single-seaters before long if we are to be on an equality with foreign air fleets. It is true we have sundry fast Nieuports, but, to put it bluntly and brutally, our pilots are afraid to fly them. They are not afraid of the speed, but there is an idea that the Nieuport type is dangerous. The Hanriot, having a family resemblance to the Nieuport, presumably suffers for the supposed sins of its cousins. The difficulty of reversing the existing impression is great, and may well dishearten those responsible for the machine in this country.]

The Maurice Farman biplane differs greatly from any other machine in the competition by reason of its very large wing area and comparatively light weight. It is a singularly stable machine, very easy to control, and with some power of recovery, both longitudinally and laterally, from the disturbing effect of wind gusts. In range of speed it excelled all competitors except the Cody, but in actual speed it only just passed the minimum required.

This aeroplane may be considered a very safe machine, and valuable for instruction and practice.

[There is little to be said about the Maurice Farman. Its many good qualities have been described many times in this paper. Its light loading, though making it theoretically inefficient, certainly makes it safe and easily controllable. Whether it is actually stable, in the true sense, is possibly open to argument, though it is certainly much nearer being so than any other machine of its type, and there is a big difference between the old type of motor box kite and the Maurice Farman, which is a true flying machine. If it is not actually inherently stable—which it may be—and if it would not recover itself if turned over with the controls locked—which it might—it is at any rate so wonderfully controllable that it is one of the safest machines in the world to-day. As the Judges say, it is "valuable for instruction and practice," and on active service would be more valuable than most machines, its only trouble being that if put up against really fast machines it could only escape by dodging and turning, and here its great controllability would give it at least a fair chance.]

The tandem Blériot (No. 4) is a very attractive machine, light, stable, and strongly constructed. The view is good for a monoplane. The observer is seated behind the pilot. The fuselage is, in accordance with the usual Blériot custom, not cased in.

This machine, very skilfully piloted, passed all the tests, but with not very much to spare. This was mainly due to the fact that a Gnome engine of only 70-h.p. is fitted. It would still appear to be the case that, although the light single-seater Blériot machine, built to suit the 50-h.p. Gnome, has, perhaps, up till now, been more successful than any other single-seater monoplane, considerable difficulties are experienced when a more powerful type is called for.

The above remarks also apply to a certain extent to the side by side (sociable) seater of the same make (No. 5). The fuselage of No. 5 is cased in. It appeared to be less stable than No. 4. The view is good.

[Here the Judges have hit on a point which has apparently never previously been brought to notice, namely, that the high-powered Blériots have not been a success, as, for instance, the two 100 h.p. in the French trials of 1911, and the famous "Limousine." This is probably due to the fact that Blériot never seriously started to design for big power, but has simply put big engines into enlarged ordinary machines. The big new "Monocoque" may show him in a new light. The ordinary 50-h.p. Blériot has never pretended to be a highly efficient machine; the head resistance of the chassis and the drag of the open end of the fuselage covering half way along, must prevent it from being so, but taking it all round it has been wonderfully successful, partly owing to the fact that it is almost automatically stable, and partly owing to its controllability. It has always seemed strange that the Royal Flying Corps has never possessed any modern single-seaters, which are excellent for cross-country training, and would be quite serviceable in war.

The side-by-side Blériot is not liked by anyone who has flown it. Even Mr. Hamel never felt happy on it, and M. Perreyon never flew the one in the trials as happily as he flew the tandem. The Flying Corps owns one which formerly belonged to the late Lieut. Cammell, R.E., a very old and certainly decrepit machine. When the writer saw it on the Plain during the military competition it looked highly

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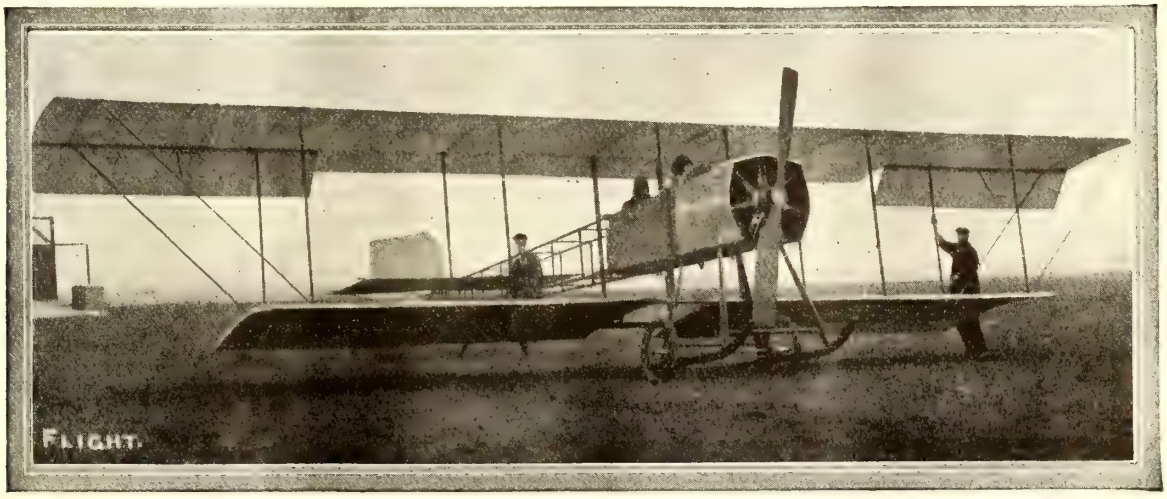
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dangerous, the lower "planche" being still without the steel reinforcing stays now fitted to all Blériots.

The 70-h.p. tandem Blériot is an exceptionally fine machine, as has been shown by Messrs. Hucks and Hamel, and the late Mr. Astley, and it is surprising that several have not been bought for the Flying Corps. If ordered to be built in England M. Blériot is quite prepared to open works here, and so employment would be given to British workmen.]

The British Deperdussin monoplane is very similar to the French pattern. The observer's seat is, however, in front of that of the pilot. In workmanship and finish the foreign machine is superior. The British entry showed signs of somewhat hurried construction.

No serious effort was made until August 24th to put this machine through any test, and naturally the pilot (who, at the last moment, took the place of the original pilot) found the time insufficient. The three hours' consecutive flying was achieved, but the height of 4,500 feet was not attained, on the first trial on account of dense clouds, and on the second owing to engine stoppage.

[It is not unnatural that the construction of the British Deperdussins should show signs of being "somewhat hurried." Owing to the unnecessary delay in publishing the final conditions of the competition the firm had to get their works going and do everything in six or eight weeks, and the machines were actually finished on the last day on which they could be despatched to the Plain. As Mr. Santoni said, they were fitting engine details while the machine was being packed in its case. Hence there is some excuse for such little matters as spliced skid-struts. The performance of the machine with the 100 h.p. Gnome, flown by Mr. Bell, was quite good, and in some ways that with the 100 h.p. Anzani, flown by Lt. Porte, R.N., was even better. Personally the writer would like to see certain alterations in the design of the plates holding the wing cables to the spars, and in the attachment of the cables to the chassis, but in practice these fastenings seem strong enough. The machines built since the competition are a distinct improvement in general construction and in finish.]

The Bristol monoplane is a well-designed and well-constructed machine. It is, however, heavy for its wing area, and has very little reserve of power when fully loaded. The two machines, Nos. 14 and 15, are practically identical, the differences in results being probably due partly to pilotage and partly to engine tuning.

These monoplanes are comfortable to sit in, the observer is, to some extent, protected from propeller draught, and the view is fair. If made somewhat lighter, or if not required to carry full load, they would be very efficient machines.

[The two Bristols were certainly unsurpassed by any machine in the competition so far as construction and workmanship were concerned. The one weak point in the machines appeared to be that they were too efficient. That is to say, the wing design was so good and head resistance was so cut down that the wings lifted more than was good for them. Here the writer is not referring to danger of wings breaking or of fabric splitting, both of which can be got over easily, but purely to the question of control. In the hands of skilful pilots trained on the one machine a highly efficient machine may be quite safe, but military machines must apparently be flown by all and sundry—a thoroughly bad principle—and so it is as well not to make for superlative efficiency. Given a bit more surface for the pilot to play with, even at the cost of speed, and one gets a more popular machine.

Strangely enough, the Judges appear to have made the mistake of confusing efficiency and effectiveness, just as has been done in Parliament on more than one occasion. If built lighter—as they are being built to-day—or carrying less load, the Bristols would have been less efficient in relation to horse-power and surface as flying machines, but more efficient for military purposes in relation to their usability by ordinary pilots.

The writer, in common with several experienced pilots, cordially disliked the two machines in the competition, and said so, perhaps rather more plainly than was politic. This dislike was simply because there was not enough margin of loading to suit the ordinary pilot, and at the time the older type of 70 h.p. with a lengthened fuselage was certainly a nicer all-round machine. Since then the Coanda type has been lightened, and so has relatively more surface. Consequently it is probably one of the finest flying machines in the world. If built with still more surface and less speed it might be made suitable for Flying Corps school work, so that pilots trained on box kites could learn to control a well designed monoplane before going on to the high speed type, for judging on design it ought to be very nearly inherently stable.]

The "Avro" biplane is remarkable for the peculiarity of its construction, the pilot and observer being completely enclosed in a cabin with windows. This innovation has undoubtedly some advantages; rain makes but little difference to the comfort of the pilot, and propeller draught is not noticeable. There are also, however, disadvantages, the chief being restriction of view. The machine is well designed and of good construction, but was, for the purposes of these trials, under-engined, the power being insufficient to give the rate of climbing required. Also, owing to the small size of wheels used, and the fact that the central skid is fitted very near to the ground, rising from ploughed land was quite impossible.

[This is about the only instance in the report where the Judges seem to have been at all unjust. As regards restriction of view they are certainly correct to some extent, but it occurs to one that observations made in absolute personal comfort from a smallish window may quite conceivably be more accurate than those made from an unprotected position in acute discomfort, though the field of view may be larger.

The actual injustice is in suggesting that the machine was under-engined. As a matter of fact the machine suffered from a peculiar down current during the first 1,000 feet of its climbing test, or else from some temporary derangement of the carburation, so that she climbed very slowly. This is proved by the fact that the second 1,000 feet was done at or above the required speed. Her subsequent performance with the same engine show that she had plenty of power. It is true that if the engine had been placed low in the fuselege and the propeller geared down, as in the Cody with the 60-80 Green—an older and less efficient engine of the same make—she would undoubtedly have been more efficient. Still, the power was there, and it is a pity that the prejudice against four-cylinder engines which exists in certain quarters should have been allowed to intrude into what is otherwise a marvellously unbiassed report.

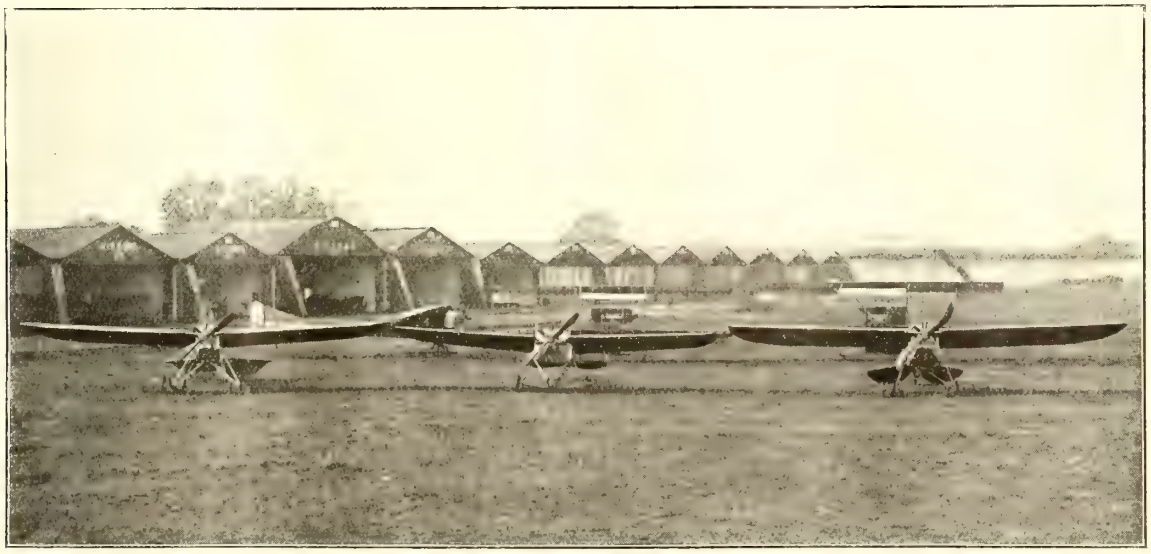
It is well to note that this machine was smashed up on the third day of the competition, everything being wrecked except the pilot's cabin, thus showing how a pilot ought to be protected against somer-



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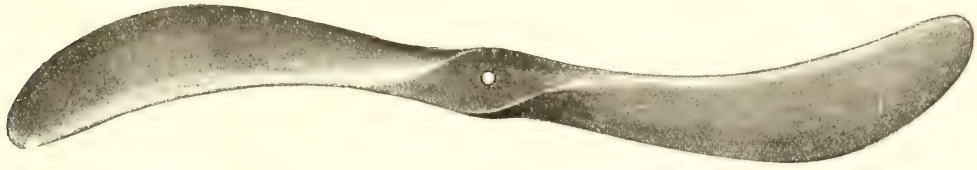
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saults on landing. No mention is made of this in the report, nor of the fact that the machine was completely rebuilt, re-tuned, and pushed through its trials in the very worst of the weather. Nor is any mention made of the fact that this, an absolutely new and untried type of machine, flew in a nasty wind at the first time of asking. In fact, one cannot help feeling that the Avro might have been given considerably more commendation than it received.]

In the Mersey monoplane the pilot's and observer's seats are placed side by side. Dual control is fitted. The aeroplane is driven by a 7-cylinder 45-h.p. Isaacson engine fitted in front; the propeller is behind the main planes, and is driven by a shaft from the engine through gearing. The tail is of directional type. The rudder is a balanced vertical one, with foot-bar control. Wing warp actuated by wheel. Propeller two-bladed, 9 feet, 5½ inches diameter, 7 feet 1¾-inch pitch, maximum revolutions 900 a minute, geared 2 to 1 from engine crank shaft.

The chassis consists of two fixed longitudinal skids carrying two small wheels in front and two main wheels connected by an axle with rubber shock absorbers between the axle and the longitudinal skids.

The intended flying speed of the machine is 60 miles an hour.

The machine was assembled and made a preliminary flight at the opening of the competition. During the following days a few practice flights were made by the pilot, Mr. R. C. Fenwick, sometimes with and sometimes without a passenger. At about 6.30 p.m. on August 13, Mr. Fenwick started a practice flight alone, and when about half a mile from the sheds, the machine fell from a height of about 300 feet, and was completely wrecked, the pilot being instantly killed.

The Judges' Committee are of opinion that the machine possessed some original and useful features, but that its constructional details were capable of improvement, having been designed and carried out in a somewhat hasty manner. As the 3 hours' test was not effected, the ability of the machine to carry the requisite load was not proved, but it is possible that it might have done so, owing to the believed small fuel and oil consumption of the engine.

The Judges' Committee desire to express their profound regret at the death of Mr. Fenwick, a man of most attractive personality and of great promise as a pilot and designer.

[The whole note on the Mersey is one of the best things in the report, showing that the judges realised the great possibilities of the type which has been so often recommended in this paper. The construction was undeniably poor, as was natural considering the exiguity of the constructors' means. It is highly probable that the fitting of the big wings to carry the necessary weight of fuel for the tests was the direct cause of the accident, for the makers were unable to afford to build a new machine, and the tail and rudder controls which were big enough to control the smaller wings may well have been insufficient to hold the bigger wings when caught in a big wind.

The kindly reference to R. C. Fenwick by the Judges must be a great consolation to his mother and sister, who already know how those connected with the aeroplane industry appreciated his worth.

One only hopes that someone will be wise enough to experiment still further with the Mersey type, which comes very near the ideal for military work, and is a distinct advance on present practice.]

The Judges' Committee wish to record their appreciation of the admirable spirit shown by the competitors and pilots engaged in these trials. No personal difficulty or trouble of any kind arose, and it seemed to be the desire of all to ensure a fair and unbiassed trial of efficiency and the success of the most deserving. Owing to the persistently unfavourable weather, the judges were compelled to proclaim as "flying weather" every interval when the wind moderated at all, but the pilots, almost without exception, ascended cheerfully under weather conditions that were sometimes not very attractive.

The detailed arrangements for the trials were made by the officers of the Military Wing, Royal Flying Corps, and they, assisted by a number of Staff College Students, who volunteered for the work, by the officers of the Central Flying School and the Staff of the Royal Aircraft Factory, acted throughout as observers, timekeepers and weight-checkers. To these officers and to Mr. H. E. Perrin, Secretary of the Royal Aero Club, who also helped throughout the trials, any success which may have attended the competition is due.

[The complimentary remarks of the Judges on the competitors and pilots is witness of the kindly spirit in which the military authorities met those in the trade, and one only wishes that the business of buying aeroplanes for the Army could be carried on in the same way.

If the soldiers and sailors of the Royal Flying Corps were allowed to buy their own machines without the intervention of civilian experts and officials appertaining to the War Office, there is no doubt that everyone connected with the industry would be thoroughly satisfied with their treatment, and that the Flying Corps would by now be well equipped with well built, efficient and effective aeroplanes.

In conclusion, the writer feels sure that he expresses the feelings of the whole aeroplane industry when he thanks the Judges for the clearness, fairness, and kindliness of tone of this report, and when he assures the officers of the Royal Flying Corps that so far as they are concerned the industry has every confidence in their desire to buy British machines and to select machines of types at once safe and serviceable.

The root of the present trouble is the spoon-feeding of the Flying Corps by civilians and politicians, but we all live in hopes that it will all work out right in the end.

Airship and Kite Squadron Reserve.

The following is an outline of proposals for the formation of a special territorial reserve for the Airship and Kite Squadron, Military Wing, Royal Flying Corps.

This special reserve is mainly required to complete the Airship and Kite Squadron, and the Flying Depot, Lines of Communication, on mobilisation. The men should, therefore, be trained in—

(I) The drill of the ground detachments of airships and kites.

(II) The application of their trades in preparing and maintaining aircraft in the field.

Selected men should, however, be trained in aeroplane work.

The period of annual training should probably be the same as that for the Territorial Force, the recruit doing his recruit drills during his first annual training.

In addition to the annual training, courses of instruction should be provided for selected non-commissioned officers and men who attend, at which they should be taught the application of their trades to the care and maintenance of aircraft.

These courses should extend over one month to six weeks, and should be carried out in Royal Flying Corps workshops at the Central Flying School or Military Wing.

The men should be recruited chiefly from mechanics of the special trades required, and should enlist for a period of four years, with power to re-engage under certain conditions.

They must accept liability for service abroad in any part of the world, and to perform duties in the management of aircraft, whether on land, water, or in the air.

For the purposes of administration and training they should be commanded by the Officer Commanding, Military Wing, Royal Flying Corps.

The men sould receive pay at Flying Corps rates while performing military duty, and should receive a gratuity of £10 per annum if they carry out their training and are reported as efficient.

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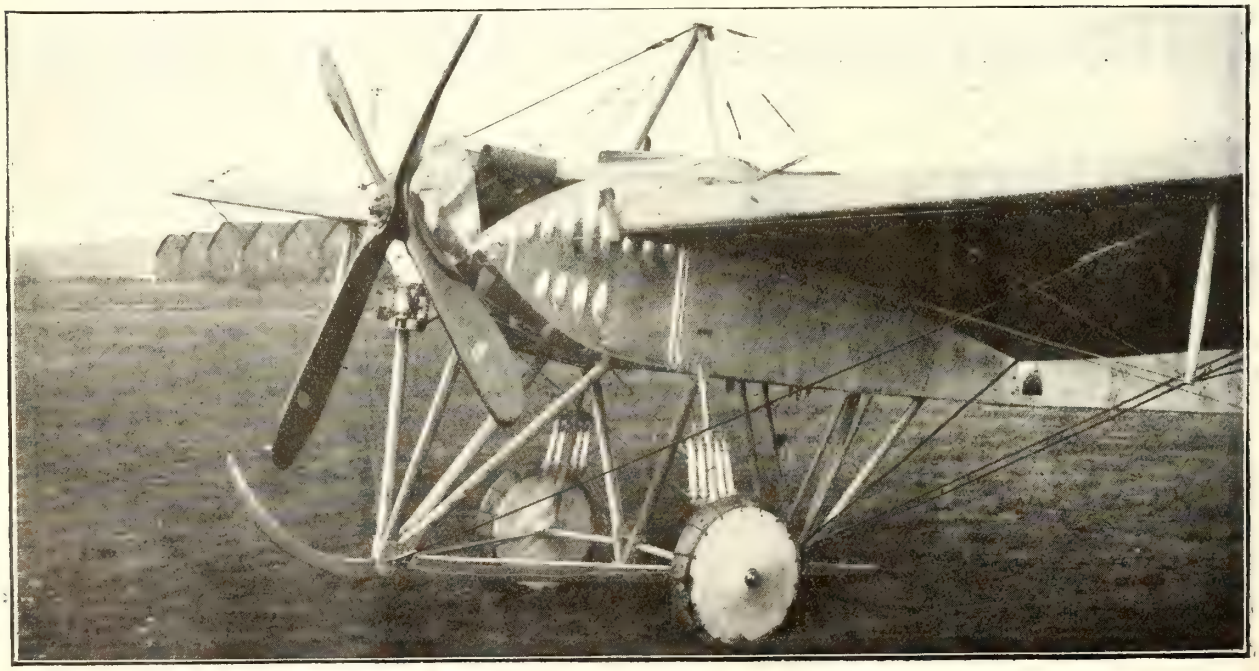
BY W. E. de B. WHITTAKER.

For military purposes the aeroplane has passed the stage of pure experiment. It has now a legitimate part in the organisation of an army in the field. There is a vast possibility of improvement in design and construction, but even so, the flying machine now ranks as much a necessity in a modern army as a quick-firer or siege gun. Warfare is possible without them, but collective efficiency is reduced by their absence, and it is the fact of their position in the economy of war being settled that complicates the question of organisation. The British Army, if the aeroplane is of vital use, ought to be supplied immediately with an adequate number. It is folly of the highest degree to wait for perfection when foreign armies are making every use of imperfection. In history it is almost the first instance of a new invention springing into immediate note as an essential for military purposes. Guns and gunpowder very gradually crept into warfare after a hard struggle against the innate conservatism of even the aboriginal soldier. The rifle invented in the latter years of the eighteenth century waited fifty years before it was generally accepted. The aeroplane, on the contrary, had not seen six summers of practical life before its military importance was generally realised. It is for this reason that some step should be taken to determine the number of aeroplanes required adequately to equip the Army, and, having so decided, at once to proceed with the supply.

Government departments, efficient or inefficient, are rarely loquacious, and consequently it is inadvisable to assume that, because silence is maintained, deeds are lacking. So far no pronouncement has appeared showing the number of aeroplanes necessary for active use in the Army. It is more than probable that the desired figures are already worked out but are unpublished, firstly, because it is no particular business of the British public, and secondly, because the quantity is at variance with the amount of money available. We have slept too long, and valuable months have slipped by in which preparations should have ceaselessly continued, and now it is only by a sustained effort and at great expense that it is possible to catch up certain foreign nations in the dominion of the air. War is threatening in the sky and we are unprepared. We have still a little time, and even the meanest intelligence can see a proper line of action. But this is no place for controversy.

In Great Britain the Army which we hold prepared for active service at home or abroad is termed the Expeditionary Force, and consists of six divisions of infantry and one of cavalry, with the requisite artillery and details for such troops. There is a theory that this army can be at forty-eight hours' notice placed on a war footing fit for service in any part of the globe. Be that as it may, the only section of the Expeditionary Force which concerns us is the Royal Flying Corps, of which eight squadrons, one of which is for airships exclusively, are assumed to be formed for service. Actually, in addition to the airship squadron, two are in existence, neither of which have their full complement of machines, pilots, mechanics, or transport. Each squadron is some day to consist of twelve aeroplanes and is to have a minimum of twenty-four pilots, half of whom are to be officers. Thus 364 pilots (including a wastage reserve) and 84 aeroplanes are required on mobilisation, according to the official mind. This number is to carry out all the necessary aviation work for an army of, roughly, 167,000 men. To use the obvious method of division it appears superficially that each division of the expeditionary force is to have a squadron of aeroplanes. Actually this is probably wrong, but in any case the supply is not adequate.

In considering the necessary distribution of aeroplanes in an army in the field it is clear that the General Staff has the greatest need for machines as in the case of strategic scouting all the operations will be under its control, and in the case of tactical reconnaisance the greater part of instructions will emanate from headquarters. Half of the available aeroplanes in an army should be under the immediate command



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of the Chief of the General Staff. This, under existing conditions, leaves forty-two aeroplanes for the divisional staff, artillery duties, and lines of communication. In the memorandum of Naval and Military Aviation, published in April by the War Office, the duties of military aeroplanes are summarised as follows :—"(*a*) Reconnaissance; (*b*) prevention of enemy's reconnaissance; (*c*) inter communication; (*d*) observation of artillery fire; (*e*) infliction of damage on the enemy. Manifestly in the present state of aviation one type of aeroplane cannot be expected to carry out all these diverse duties adequately and rapidly. The first duty alone (*a*) demands the use of two separate types, and the last (*e*) probably requires an aeroplane of large size capable of lifting great weights.

The aeroplanes attached to the headquarters staff will be used for reconnaissance and for dispatch carrying. Assuming the battlefront to be one of fifty miles only—not unusual under modern conditions—forty-two aeroplanes is inadequate for the work. This, too, without any reserve of machines. This small number will be chiefly responsible for the scouting of the entire army, will have to protect itself against aerial attack, and will have to prevent the enemy's aeroplanes acquiring too much information. One doubts whether under modern conditions such a number of machines would survive ten days of action. The risks inseparable from ordinary flying, apart from the perils of war, will help in the process of elimination at a rate sufficient to turn even an aerodrome manager into an imbecile.

Such allocation leaves each infantry division with seven aeroplanes to serve its staff and to act on range finding duties with the artillery. Each division has in it three field artillery brigades (nine batteries), two F.A. Howitzer brigades (five batteries) and one heavy battery. Aeroplanes should be supplied to artillery at the rate of one per battery (though they would not necessarily work individually by batteries). Thus the artillery of each division would require fifteen aeroplanes—just eight more than each division can have.

The staffs of infantry divisions require a certain number of machines for reconnaissance in immediate connection with the divisions and for inter-communication. One would imagine twelve to be a moderate estimate for this. Under pressure of war there are countless duties on which these machines can be engaged. And then the confusion of battle will render the return of a large proportion unlikely, thus making a large reserve necessary.

One cannot see that a cavalry division will require any aeroplanes at all. Itself engaged in scouting to some degree, the information which it may desire can be obtained from the General Staff. Again, cavalry is popularly supposed to be mobile, and the addition of aeroplanes would only reduce mobility without giving any corresponding gain.

Taking the purely arbitrary figures stated above it will thus be seen that according to this view a minimum of 204 aeroplanes is required at once apart from those employed on lines of communication and reserves, a number which would necessarily vary and could not in any case be small. Probably at least 300 machines are necessary to be ready for immediate use.

In point of fact it is childish even to discuss this question. The eighty-four aeroplanes promised in April are not yet in existence, nor are they all even on order. We are far from complete even on the moderate estimate of a sanguine Under Secretary of State. We are assured that neither money nor enthusiasm are lacking. Then why the delay?

The papers tell us there is trouble in the East, and if report be true the Balance of Power is like to be upset. We are a Great Power, and it is the duty of Great Powers to interfere. Yet before one interferes in another's business it is well to be prepared to enforce one's wishes with force if necessary, and none can say quite truly that we are prepared. The worst of it is that we cannot rely on the unpreparedness of other Powers.

There is not time even to confine orders exclusively to English manufacturers however excellent their products may become. The time is short, and it is necessary to buy aeroplanes in all markets immediately. History does not wait.

Naval and Military Aeronautics.

GREAT BRITAIN.

Major J. F. A. Higgins, D.S.O., R.F.A., and Lieutenant J. D. Mackworth, Queen's (Royal West Surrey) Regiment, have been appointed to the Royal Flying Corps.

Capt. J. M. Salmond, Royal Lancaster Regiment, has been appointed to the Royal Flying Corps as an instructor.

FRANCE.

Lieutenant-aviator de Sylvestre, of the Belfort Escadrille, made a flight of some note on November 4th. He left Etampes on a two-seated 70-h.p. Gnome Blériot, accompanied by a mechanic, at 7.30 a.m. The wind was high and not in his favour. He stopped at Troyes for some time and also at Chaumont, in both cases very fatigued with journey. He finally landed at Belfort, a distance of 400 kilometres from Etampes, at 4.40 p.m., having made the flight at an average altitude of 1,500 metres.

A hangar for military aeroplanes is to be erected at Joigny on ground presented by the municipality. This example is common throughout France at this date.—W.

AUSTRIA-HUNGARY.

The Austrian Army has two aerodromes, the first—of great excellence—at Wiener Neustadt (about thirty miles from Vienna), and the second at Goerz, to the north of Venice and on the Italian border, and is the winter station. The officer-aviators, as in other countries, are selected from all arms of the Service and wear their regimental uniforms with a distinctive badge. Each officer, except the officers commanding centres, return to their regiments after one year's training. The aeronautic sections are quite distinct, and have headquarters at Fish-Harnend (twelve miles from Vienna). The army has three dirigibles in its possession—a Lebaudy, a Parseval, and a Korting, the latter of which, constructed in Austria, is by far the most efficient.

Lieutenant-aviator Petrovitch fell from a great height at Goerz on November 6 and was seriously injured. He died the next day.—W.

Lieutenant von Petrovich, who died after an accident with his Etrich monoplane at Goerz, in Austria, has the sad distinction of being the first military pilot to be killed in the Dual Empire. He is the third Austrian in all to die, the others being Nosca and Wiesenbach.—B.

GERMANY.

Another double fatality occurred in Germany on November 6th, the victims being Lieutenant Altrichter (20th Infantry) and his passenger, an engineer named Meyer. Whilst flying at Halberstadt they fell from 20 metres and were killed on the spot.

A new N.A.G. aerial motor has been severely tested at Doeberitz, and worked satisfactorily with the exception of a minor detail or so, which is now being righted. It is a 125-h.p. six-cylinder, with 135 mm bore and 160 mm stroke, and was fitted to Lieutenant Mahnke's Mars-Arrow biplane for the tests.—B.

SWITZERLAND.

Aviation in Switzerland, never very prosperous, is on the downward grade, and should the Confederated Council not assist liberally with a view to the military side of aeronautics, 1913 will see Switzerland without a flying-ground of any importance. The Swiss company at Viry, near Geneva, where several good flights were made, went into liquidation last week, and a like fate is rumoured for Zurich-Duebendorf. To make matters worse, two good men, Cobioni and Blanc, came to an untimely end a few weeks ago, and two others, Audemars and Ingold, are preparing to take out letters of naturalisation in France and Germany to qualify for military flying.—B.

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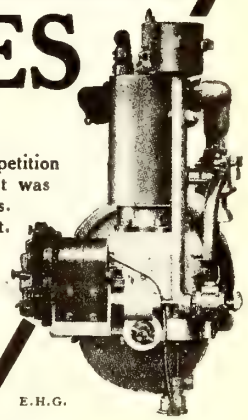
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The Engines of Proved Efficiency.
The 100 h.p. 6-cylinder British Green Engine made its first appearance in the flying world in the competition for the £600 British Empire Michelin Cup No. 2, offered for the best cross-country flight. ¶ It was used by Mr. S. F. CODY in a "Cody" Biplane, who secured the Prize with a flight of 186 miles. ¶ Remember also that it was a "Green" Engine which won the Patrick Alexander 24 hours' Test.
Write to-day for details of "Green" Engines, including the 100 h.p. 6-cylinder Model.
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E.H.G.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

TURKEY.

According to a German war correspondent, the two aviators, Jahnow and Rentzel, who were engaged as scouts by the Turkish Government, have been through some thrilling experiences. The Turks took the aeroplanes to Kirk Kilisse, but, although the pilots had, on being engaged, telegraphically requested sheds to be erected, there was no accommodation for them; and, in spite of their efforts, the machines were left in the open for a full fortnight. It rained in torrents for two whole days, and the motors rusted up. To make matters worse, the repair outfits and tools were stolen, and on the approach of the Bulgarians the Turks simply set fire to the two aeroplanes.—B.

UNITED STATES OF AMERICA.

The following two specifications have been issued by Brigadier-General James Allen, commanding Signal Corps, United States Army:—

The first is a specification for a scouting military aeroplane—

(1) The aeroplane must carry two persons, with the seats located to permit of the largest possible field of observation for both.

(2) The control must be capable of use by either operator from either seat.

(3) The machine must be able to ascend at least 2,000 feet in ten minutes while carrying a weight of 600 pounds, including the aviator and passenger, 150 pounds of gasoline, and extra weight to make 600 pounds. All the extra weight must be carried on the engine section and not distributed over the wings.

(4) The fuel and oil capacity must be sufficient for at least four hours of continuous flight. This will be determined by a trial flight of at least one-half hour, measuring the consumption of gasoline while carrying the passenger and weight stated in paragraph 3.

(5) It must be easily transportable by road, rail, etc., and easily and rapidly assembled and adjusted.

(6) The starting and landing devices must be part of the machine itself, and must be capable of being started by one person without any other assistance.

(7) The engine must be of American manufacture and capable of throttling to run at reduced speed.

(8) The engine will be subject to an endurance test in the air of two (2) hours' continuous flight. This test will be made with aviator and passenger, extra weight and fuel enumerated in paragraphs 3 and 4.

(9) The aeroplane must develop a speed in the air of at least forty miles an hour. This test will be made with aviator, passenger, extra weight and fuel enumerated in paragraphs 3 and 4. The maximum speed must not exceed 65 miles an hour.

(10) The machine must be capable of landing on and starting from ploughed fields. This test will be made with aviator, passenger, extra weight and fuel enumerated in paragraphs 3 and 4.

(11) The supporting surfaces must be of sufficient size to ensure a safe gliding angle in case the engine stops.

(12) The efficiency and reliability of the system of control must have been demonstrated before the purchase order is placed. The aeroplane must be capable of executing a figure eight within a rectangle 500 yards by 250 yards, and without decreasing its altitude more than 100 feet at the completion of the figure eight. This test to be made by aviator alone without carrying extra weight.

(13) The extreme width of the aeroplane supporting surfaces must not exceed 40 feet.

(14) Manufacturers must provide a nameplate for each aeroplane, giving necessary data, such as makers' type and serial number; but the painting of names or similar matter on any part of the machine is prohibited.

Signal Office, War Department, October 5th, 1912.

(Approved.)

The second is a specification for a speed scout military aeroplane—

(1) It must carry one person with the seat located to permit of the largest possible field of observation.

(2) The machine must be able to ascend at the rate of 1,500 feet in three minutes while carrying fuel for one hour's flight.

(3) The fuel reservoir must be large enough to hold fuel sufficient for a three hours' flight.

(4) The machine must be easily transportable by road, rail, etc., and easily and rapidly assembled and adjusted.

(5) The starting and landing devices must be part of the machine itself, and it must be able to start without outside assistance.

(6) The engine must be capable of throttling to run at reduced speed.

(7) The engine will be subject to an endurance test in the air of two hours' continuous flight.

(8) The aeroplane must develop a speed in the air of at least 65 miles an hour.

(9) The machine must be capable of landing on and arising from ploughed fields.

(10) The supporting surfaces must be of sufficient size to ensure a safe gliding angle in case the engine stops.

(11) The efficiency and reliability of the system of control must have been demonstrated before the purchase order is placed. The aeroplane must be capable of executing a figure eight within a rectangle 500 yards by 250 yards, and without decreasing its altitude more than 100 feet at the completion of the figure eight. This test to be made by aviator alone without carrying extra weight.

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Signal Office, War Department, October 5th, 1912.

(Approved.)

It would be well if some such clearly-defined specifications could be issued in Great Britain as a guide to British manufacturers.—W. E. de B. W.

The First Flanders for the Army.

On Friday, November 8th, the first of the four Flanders monoplanes ordered for the Royal Flying Corps was officially accepted at Farnborough. Mr. Raynham flew the machine to Farnborough, leaving Brooklands at 9.30 a.m. on Friday, 1st. He passed the rolling test in the morning. He attempted the one hour flight in the afternoon but after 53 minutes, the Renault exhaust pipe broke, and as the pipe was not made to the dimensions given, it set fire to the fuselage. The speed was officially given as 66 miles per hour, and the machine climbed 2,000 feet in 8 minutes, with full tanks but without a passenger. The machine was taken to Richmond for repairs, and was back at Farnborough on Wednesday morning last week. The loading test was carried out on Thursday, when the machine was loaded with 2,800 lbs. On Friday, 8th, there was a nasty wind, but Mr. Raynham flew for an hour without trouble, and the machine then passed the official inspection.

The Admiralty and Dirigibles.

The following letter has been addressed to the Civil Lord of the Admiralty:—

"Sir,—I understand that the Admiralty has ordered from the French Astra Company, of Billancourt, a dirigible of great speed and great radius of action, this dirigible to be of the type designed by the Spanish engineer, Leonardo Torrès Queredo, and to be delivered in England before the end of this year. If this rumour be unfounded, perhaps you may desire to contradict it, for should it become widespread, it would act adversely to British aeronautical interests and, at the same time, diminish the prestige of the Admiralty and its scientific advisers.

"If, on the other hand, the reports be correct, perhaps you will allow me to point out a few considerations which appear to me to be of much importance.

"It was Lord Haldane, the former Secretary of State for War, who gave out in the House of Commons the policy that the Government intended to pursue as regards aeronautics. In his speech he mentioned that it would mainly rest with the Admiralty to experiment with dirigibles, and that the Government had in its then newly-appointed Government Aeronautical Advisory Committee and in the Aeronautical Department of the National Physical Laboratory the greatest scientific assistance that it was possible to obtain. Considered in the light of the above-mentioned declaration of the former Secretary of State for War, it would seem, from the order now given to a French company, that the Admiralty had relinquished the construction of dirigibles and that it had not received from the Advisory Committee and the National Physical Laboratory the expected scientific assistance. This would point to a very serious state of affairs. It would show that, as regards the construction of military dirigibles, the Admiralty and the British aeronautical engineers are no farther advanced than was the case three years ago, and that the enormous sums already spent by the Government on dirigibles have been barren of result.

"However regrettable it may be that the Admiralty should be now forced to go abroad for its airship, it might still be possible for the Government and the British aeronautical industry to derive profit from the Admiralty's order to the French company. There is a parallel in the suggestion I am about to make in the policy adopted by the Russian and Austrian Governments when they ordered dirigibles from French firms on the condition that they should be built in Russia and Austria respectively. The value of such a condition is obvious, and there is no reason that I can apprehend that would prevent the same course being followed by the British Government.

"It is evident that the building in England of a dirigible by a French company would add to its cost, but the extra expenditure would be more than justified by the valuable experience gained, and from which the country would profit.—I am, sir, your obedient servant, (signed) L. Blin Desbleds."

The Lords of the Admiralty have a habit of doing the right thing at the right time without publishing their reasons. It may therefore be as well to refrain from comment until one sees what is done by them after the Astra-Torrès has been thoroughly tested and lessons learned from it.

Foreign Notes.

M. Poumet has now returned to France from Spain, in which country he has made innumerable flights during the last three months on his Borel monoplane. According to him, money like the "castles in Spain," is a thing of dreams. Such profit as he made was earned with much hard work. The Spaniards, it appears, languid in their habits, expect endurance almost inhuman from those who work for them. The wind may be high or the mist impenetrable, but if the pilot complains he is met with courteous smiles and long extracts from the French papers relating how Garros flew in a gale or Bernard penetrated the fog. If he persists in preferring safety to risk and life to death, the smile fades and grim ferocity succeeds it. If the pilot escapes with his life he is fortunate. M. Poumet further complains of the oleaginous nature of Spanish cooking and of the strange habits of beds in Andalusia.

The Blériot school at Pont-Long, Pau, has now re-opened for the winter season under the direction, as in previous years, of MM. Leblanc and Sallenave.

M. Gilbert, dissatisfied with Parisian cooking, left Paris on November 4 and flew on a Sommer monoplane (Rhone rotary motor) to Tours, via Etampes and Orleans, that he might lunch with happiness.

The Forbidden City has had its secrets violated, if any remain untold. The oldest home of the sciences has fallen to the newest of all. A Russian aviator, whose name is reputed to be Kouzmenski flew over Pekin on November 4 on a French monoplane. It is reported that hordes of the inscrutable Chinese signified their interest by gazing skywards.

On November 4 M. Jules Vedrines, in order to obey the invitation of Madame Catelani, flew from Paris to Bellecour on a 50-h.p. Gnome Deperdussin. The occasion was a shooting party and, accompanied by other guests, he endeavoured to exterminate the local representatives of his feathered rivals. At the end of the day he flew back to Paris

The three aviators, Marc Pourpre and George and Charles Vermincke sailed for Australia from Marseilles on November 6 for their tour through India and Australia. They are taking with them four Blériot monoplanes, eight Gnome motors and twenty propellers.

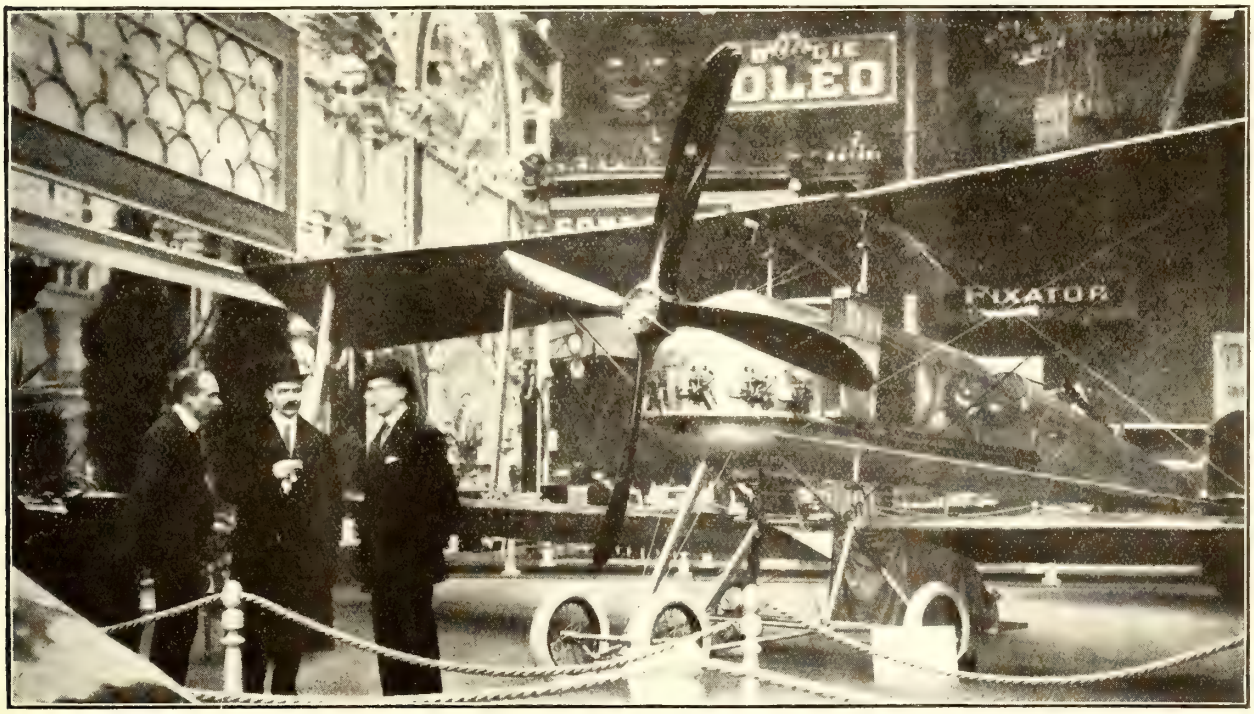
Melli Beese, the young sculptress who gave up her art for aviation, and is now a leading German pilot, instructress, and constructor, is engaged on the turning out of a series of monoplanes on the "Taube" system. It is an open secret that these machines are intended for army purposes, as the frameworks have been inspected already by a military commission. Miss Beese will shortly start building hydroplanes as well

Royal Aero Club.

The following aviators' certificates have been granted:—346, Capt. J. H. Gibbon, R.F.A. (Bristol biplane, Bristol School, Brooklands); 347 Lieut. G. A. Parker, 3rd Battalion Gloucestershire Regt. (Bristol biplane, Bristol School, Salisbury Plain); 348, Capt. James Lancaster Lucena, R.F.A. (Bristol biplane, Bristol School, Salisbury Plain); 349, Cyril Edgar Foggin (Blériot monoplane, Eastbourne Aviation School, Eastbourne); 350, Emile Louis Gassler (Blériot monoplane, Eastbourne Aviation School, Eastbourne) (subject to the sanction of the Aero Club of Switzerland); 351, Capt. Frederick St. George Tucker, the Worcestershire Regt. (Deperdussin monoplane, Deperdussin School, Hendon); 352, Capt. Robert Pigot, Rifle Brigade (Bristol biplane, Bristol School, Brooklands); 353, Tom Grave (Bristol biplane, Bristol School, Brooklands); 354, Capt. John Crosby Halahan, late Royal Dublin Fusiliers (Grahame-White biplane, Grahame-White School, Hendon); 355, Denys Charles Ware (Deperdussin monoplane, Deperdussin School, Hendon).

Aerial Derby Appeal.

The Stewards of the Royal Aero Club met on Tuesday, November 5th, 1912, at 6 p.m., when there were present: Sir Charles D. Rose, Bart., M.P. (in the chair); Sir Charles Henry,



The British Bréguet at the Paris Show. M. Garnier, the Manager of the Firm, is seen on the extreme left.

Bart., M.P.; and the Hon. Arthur Stanley, M.P. Decision:—"The stewards of the Royal Aero Club have had before them the appeal of Mr. T. O. M. Sopwith against the decision of the local stewards, disqualifying him for the prize in the Aerial Derby Race on June 8th, 1912, on the grounds of his not having been seen by the official observer at the Purley turning-point.

"After careful consideration of all the facts submitted to them, the stewards are unanimously of opinion that Mr. Sopwith did pass outside of the Purley turning-point. The fact that he was not seen by the official observers, in accordance with regulation 6, was, in the opinion of the stewards, due to the position which the observers were obliged to take up at that point, and not through non-compliance with regulation 6 on the part of Mr. Sopwith.

"The stewards unanimously agree to uphold the appeal of Mr. Sopwith against the decision of the local stewards.

"Lord Lonsdale, one of the stewards, who was unable to be present, having had all the facts submitted to him, concurs with this decision."

Mr. Cody's Lecture.

On Friday last Mr. S. F. Cody delivered a most interesting lecture to the Kite and Model Aeroplane Association, the object being to assist in the formation of a Territorial War Kite Section. Naturally the most appropriate subject was Mr. Cody's own experience with kites, as his are recognised as the best in the world, and are the only really successful man-lifters in this country. The lecture was illustrated with excellent slides of Mr. Cody's kite experiments from their earliest time.

In showing a particularly efficient but ugly kite, Mr. Cody struck a great truth when he said that an article always suffered if it was not pretty to look at, but that he had come out on top by proving machine against machine and man against man. He described how it took him from 7.30 p.m. to 8.30 a.m. on an October night crossing the Channel in a boat drawn by kites, and he showed a kite weighing 36 lbs. which lifted him to 300 ft.

Diverging to the subject of aeroplanes he said that if someone else would find the money he would build a machine capable of flying in any wind, and that he would build it with his own money, only claiming his backer's money when he was successful. He made this proviso because he did not want to wait for six years, as he had done over his war kites, and then get £3,000 less than he had spent on them. He mentioned that Colonel Trollope, who presided at the lecture, long ago insisted that the Cody kite was a true aeroplane.

Here one may remark that if Mr. Cody says he can produce an automatically stable machine, he can do so, for, after several years' study of Mr. Cody's work, the writer is convinced that if he claims to be able to do a thing he sees his way clear to do it before he makes the claim.

Excellent photographs were shown of H.M.S. "Revenge" taken from 800 ft., and of a destroyer taken from 1,400 ft. There was also a photograph of Spithead Fort, which on the screen looked exactly like a wedding cake, and, as Mr. Cody put it, "that wedding cake is going to be divided pretty soon if we do not buck up." Mr. Cody also showed a glider built long before motor-driven aeroplanes came into existence, this glider having a surface of 986 square feet, and having warping wings for stabilising.

He also showed a photograph of the original Army Aeroplane making the first properly observed flight in England, covering 498 yards, the distance being measured by Colonel Capper, R.E., who was then Commandant of the Balloon Factory. This machine had the engine in front; it had a fuselage like that of a modern monoplane, it had a trailing wheel under the tail which was steerable, and the pilot sat behind the engine, so that it practically embodied the chief points of the modern tractor biplane with the additional advantage that the propellers were placed one on each side of the fuselage, and immediately on the centre lines of head resistance and of pressure. Mr. Cody caustically referred to recent novelties in tractor biplanes which were steerable on the ground. This machine weighed 2,300 lbs. with a 50-h.p. engine, so that it must have been very efficient somewhere. He also showed that he was the first to use streamline uprights.

Referring to the recent performances of his Michelin prize winner, Mr. Cody said that the 100-h.p. Green engine gave quite 110 horse-power, a statement which was greeted with loud cheers. Of Messrs. May and Green he said that they were as obstinate as he was himself; they were real hustlers, and were the sort of men that England needs. Their engine ran as sweetly as a dream, and was as reliable as Big Ben. One did not have to coax it with the throttle, but just opened up wide and left it there. The engine was the essence of reliability.

As regards the Michelin duration contest, he said that he did not stand down from it, but the weather simply did not give him a chance. He lifted 65 gallons of petrol, but as that did not seem to be enough for the duration he considered necessary to win, he added another tank holding a further 15 gallons, and by the time all was ready the weather was so bad that flying was impossible. He said that he could lose like a man, and preferred to lose trying.

A Flight on the Handley Page Monoplane.

On the morning of Saturday last I was passenger during a short flight on the Handley Page monoplane. Readers of this paper need no detailed description of this machine, which was originally designed and built to take part in the recent Military Aeroplane Competition. Lack of time and an unfortunate accident when an opportunity of competing did occur eliminated it from participation.

The pilot and passenger sit side by side in a comfortable cockpit, the former sitting on the right hand. The controls are a wheel attached vertically to a column for warping and elevation, and the conventional footbar for steering. A considerable degree of inherent stability is claimed for this aeroplane.

There was a south-west wind blowing of about fifteen miles an hour. We had thus to start with the wind behind, unless we taxied to the far side of the ground—never a pleasant plan. Consequently, we rose slowly. Had the pilot wished, we could have risen at a much greater speed, despite the following wind. After a single circuit we had reached a height of about three hundred feet, and at this altitude we remained until the end of the flight.

Up above the wind was puffy and unpleasant. With the object of proving the machine's stability to me, the pilot held his warping wheel rigid except when making a turn, and then only to reduce the bank, as it was the machine's first day of flying, and the pilot did not desire to take unnecessary risks.

The monoplane rolled slowly and steadily most of the time, sometimes pausing in a banked condition for several seconds, but always recovering without aid. Longitudinally, its rigid stability was constant. We rode over upward gusts with a marked buoyancy Despite the span and size of the machine, the controls were quite sensitive, immediate response following any movement of the rudder-bar.

The great drawback of the aeroplane as designed at present is its restricted area of vision. A Cellon window is let into the fuselage below the left wing, and is at the same time the door by which pilot and passenger enter the machine. But even so, remarkably little can be seen of the ground immediately below. This defect can and is to be easily remedied.

We flew out over the Welsh Harp and back, past the aerodrome, across the railway, and a mile or two beyond. I watched the ground through the window—a most unpleasant thing to do. The machine rolls and the earth becomes warped. One gets the impression that Nature is unwell and is venting her spite on the earth's surface. Viewed from above while floating in a disturbed element, rows of suburban cottages are even less pleasant than when regarded from solid earth. One wonders what attitude one would take if a forced landing had, perforce, to be made on a chimney-strewn roof. Such thoughts are what the "cognoscenti," the "jeunesse dorée" of the aerodrome, term, scornfully, "cold feet." But if Truth could temporarily make a visit to strange places, the majority of passengers would confess to a feeling of mental chilliness when flying in new machines.

Directly in front of me, screwed to the "dashboard," was a speed indicator of the type used in H.M. aerial Service. To judge from this, our speed was about fifty-eight miles an hour, increasing when the tail was high to sixty-two miles an hour. The use of such an instrument is an invaluable aid to a pilot. He can judge his glide with perfection, and need not be worried by dreams of too flat an angle of descent. An inclinometer was also fitted.

The pilot finally cut off his engine when just outside the aerodrome over the railway, and we landed gently by Pylon 1. There is no question that Mr. Handley Page's claim for inherent stability in his monoplanes is amply justified, though at the same time it would be interesting to know what would happen on the ordinary monoplane if the warp controls were left alone.—W. E. de B. W.

The German Airship over Sheerness.

It now seems practically certain that the mysterious aircraft heard over Sheerness on the night of October 14th was actually one of the German Zeppelins. Careful inquiries in Germany and elsewhere have shown that a Zeppelin was in the air during that period, and in the direction of England, and those who are used to the sounds of various types of machines have been able to identify the sound heard at Sheerness as the sound peculiar to the engines and gears of the German vessel. It therefore seems that a direct question should be addressed by our Foreign Office to the German Government asking for an explanation as to why one of their aircraft was inside the sacred three-mile limit without giving warning of its presence.

Of course, it may be that this visit was paid before the machine was actually taken over by the German Government, and, if so, it would, naturally, be quite within its rights as the property of civilians in visiting our shores, but the point is a very fine one, and should certainly be cleared up.

It must be remembered that the modern Zeppelins can reach a speed of close on 60 miles an hour, and can remain in the air for 30 hours at a stretch. The newer types will be even speedier, and will be able to hold the air for 60 hours, so it will be seen that it is quite time steps were taken in this country to counter the latest German move.

It is most important to note that even if we were able to buy a Zeppelin to-morrow it would inevitably be broken up inside of a fortnight, for the good and sufficient reason that we have not in this country either crews trained in the use of big dirigibles, nor have we landing parties trained to handle them when on the ground. To place any of our present dirigible pilots and crews in charge of a Zeppelin would be precisely like placing the lamented Sir Francis Drake and the crew of the "Golden Hind" in charge of a super-Dreadnought, and, therefore, our only sensible course is to build and buy as many small and medium-sized dirigibles as possible, and train men on them while we are setting to work to build really big machines. For, even if we started at once with a complete set of drawings of either the Zeppelin or Schutte-Lanz rigid dirigibles, we could not get one built inside nine months, and if we tried to build one ourselves, even with the knowledge acquired from the late lamented "Mayfly," it would take us considerably over twelve months before we got a satisfactory vessel, after which we would have to start training men to handle it.

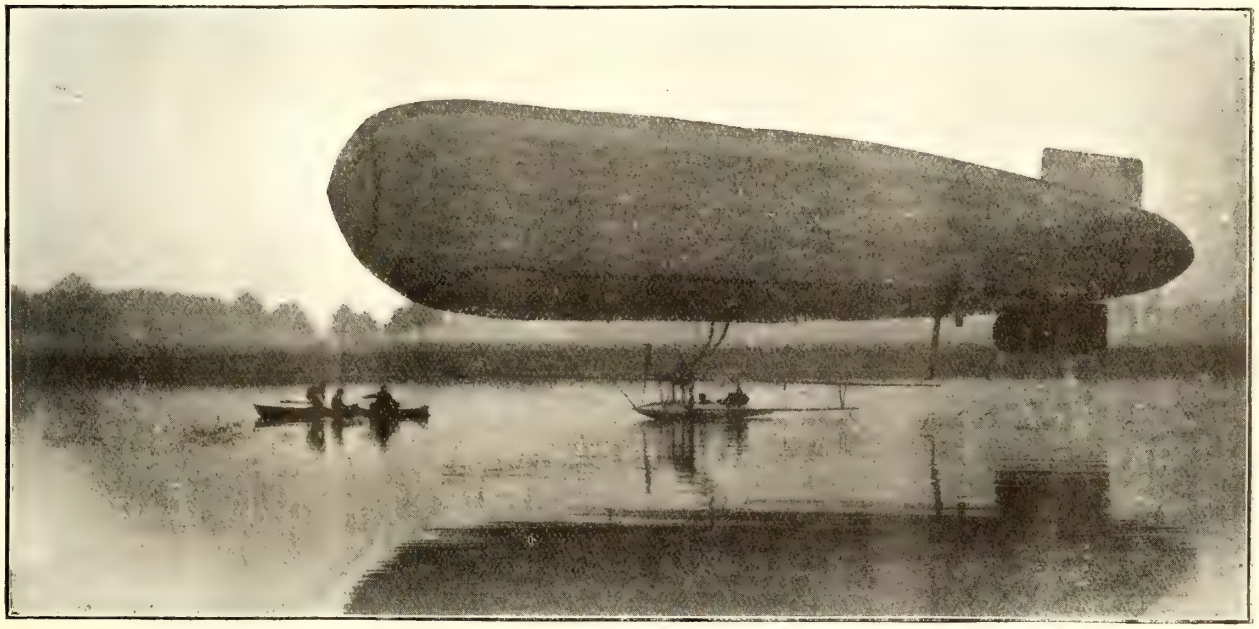
Added to our troubles is the fact that although the only effective weapons against these large dirigibles are aeroplanes of considerably greater speed, we have not in our Flying Corps to-day more than two or three aeroplanes capable of doing even ten miles an hour more than the latest German airships, and if we had, we have not got the pilots to fly them. Thus we find ourselves in the shadow of a great European war—so imminent that Army officers are not allowed more than forty-eight hours' leave abroad, and Naval officers are not allowed leave abroad at all—with our sole aerial defence consisting of, perhaps, a dozen thoroughly trained service aviators, and certainly not a dozen aeroplanes fit for a modern campaign, and still it is impossible to obtain either from the Admiralty or War Office any guarantee that British firms who produce a really satisfactory high speed aeroplane will obtain orders. And although there is a sort of unofficial understanding that orders will be given to firms who can produce satisfactory aeroplanes, there is not even that much offered to British engine makers. Never was the "Wake up England" spirit more immediately of importance than it is at the moment.

Orders for British Makers.

It is understood that those individuals whose intention it was merely to give orders to British aeroplane constructors for parts of aeroplanes to be assembled in the Royal Aircraft Factory have been overruled by wiser heads. It is now said to be the official intention, at any rate, to place orders for complete machines, though possibly these machines may have to be built to the designs of the Royal Aircraft Factory Staff, so that there is still no direct encouragement to makers to experiment and produce a machine better than the Royal Aircraft Factory type. What is wanted is a direct announcement that in the event of a maker producing a machine which passes certain standard tests, such as those in the Military Competition, he will be given a certain number of orders for those machines, and that the order will be increased in some fixed ratio according to the excess of speed and climbing power over that fixed for the tests.

Sundry Engagements.

Apparently there are those who agree with the opinion recently expressed in The Aeroplane that a certain amount of responsibility is desirable in those connected with aviation. Among the engagements recently announced are those of Major Carden, R.E., Royal Flying Corps; Lieut. Barrington-Kennett, Grenadier Guards, Adjutant, Royal Flying Corps; Lieut. Spencer Grey, R.N.; Lieut. Bower, R.N.; and Messrs. Oscar Morison, Collyns Pizey, Seymour Mesford, and Walter Lawrence. Certain other well-known aviators are also accepting similar responsibilities, but do not wish them announced.



Our anti-Zeppelin.—The little Willows amphibious dirigible alighting for the first time on the water at Cove Pond

The Week-End at Hendon.

In spite of the threatening weather on Saturday last there was excellent flying at Hendon during the afternoon. Mr. Gates, on the Grahame-White school biplane was doing banked turns worthy of Mr. Grahame-White himself, and showed that he has become not only the finest aerodrome manager in this country but one of our best pilots. Mr. Pickles was flying the little Caudron in his usual excellent style, doing beautifully judged glides along the front of the enclosure. Mr. Noël was performing a sort of aerial war dance on the 80-h.p. Farman in the style which he has recently cultivated, and Mr. Travers was up on the 70-h.p. Farman.

Mr. Gordon Bell, who has just joined the London Aerodrome, was flying the old 50-h.p. Blériot, but one does not fancy that he will be seen very much on this machine, as he finds it impossible to use the warp owing to his long legs getting in the way, and it is not altogether pleasant stabilising with the rudder alone. Mr. Desoutter, who fits the machine better, was also flying very prettily.

In the evening there was a tremendous crowd of people to witness the night flying postponed from November 5th, and the performance was as excellent as before. Mr. Gates, ever energetic and determined to give people value, was the first out in quite a nasty puffy wind, flying the school biplane in excellent style and doing banked turns close to the ground. Then Mr. Pickles went up and did a long flight on the 60-h.p. Caudron, every now and then switching his lights out and appearing in quite a different part of the aerodrome. A pretty trick of his was to get up to a height of several hundred feet, switch out his lights, stop his engine, and do a long glide so that nobody knew quite where he was, and then switch on the lights again unexpectedly in the middle of the glide. Mr. Noël also flew well on the 80-h.p. Farman, and Mr. Desoutter, with only a head and tail light on the old Blériot, did another long flight.

Mr. Gates' Accident.

The pleasure of the evening was, however, entirely spoilt for some of us by the serious accident to Mr. Gates. Towards the end of the proceedings he proposed to take up the 70-h.p. Farman with a big searchlight in the chassis. He started from the first pylon heading directly away from the enclosure in the direction of the railway bank with the wind behind, and after running for a short distance his engine stopped, and we thought at first he had come down somewhere near the fence. As the machine had a Klaxon horn fitted we naturally expected him to signal for assistance, but not seeing either the searchlight or hearing the horn, we became anxious, and a car was sent across the aerodrome to look for him. It made a trip right along the far fence and was then seen to stop, its lights showing that it was quite close to the fence. Then some people with glasses saw the men in the car climb over the fence, and we knew Mr. Gates must have come down on the other side.

Mr. Bernard Isaac promptly sent out a detachment of the St. John's Ambulance Corps with a stretcher in case of an accident, and wisely restrained everyone else from crossing the ground. At the same time, in order to distract the attention of the people, he asked Mr. Pickles to go up again, which Mr. Pickles promptly did in a thoroughly sporting way. On getting to the other side of the aerodrome we found the men who had gone out with the car battering down a portion of the fence in order to get into the field next the railway, and when we had got through we found the big Farman upside down and completely wrecked, with Mr. Gates stretched out half unconscious on coats put there by some people who had come into the field from the neighbouring road. It was then seen he had got the machine off the ground all right, but in endeavouring to get up sufficiently high to turn, had been compelled to cross the fence, where in turning he had hit a tree and turned the whole machine over. Fortunately, he was thrown clear, and although he was pitched about 25 feet away from the machine, he was neither broken nor cut, the ground, fortunately, being fairly soft.

A guard was put over the machine, and Mr. Gates was transported by the St. John's Ambulance round the ground to the end shed to avoid bringing him through the crowd. At the same time the relief car went back and announced that he had come down, but was not seriously injured. Thereafter Mr. Louis Noël, who had worked hard with the relief party in getting to Mr. Gates' assistance, very pluckily took up the 80-h.p. Farman and made another fine flight to entertain the crowd before the fireworks started.

Mr. Gates, after a brief examination in the shed, was then transported to his own office at the aerodrome, where he was put to bed, and is being excellently looked after by the doctor of the St. John's Ambulance section. Incidentally, it is worth mentioning that while he was being brought in, the writer happened to speak to a doctor of some note who was present, and that doctor actually asked why Mr. Gates was not brought across the ground in the car instead of on the stretcher. Can anyone imagine a qualified medical man,



Mr. Richard T. Gates doing a fine banked turn at Hendon on Saturday on the Grahame-White biplane. The head-light and the sockets of the small lamps along the leading edge of the machine may be seen.

even if he is not a surgeon, suggesting that an obvious concussion case should be slammed over rough ground in a motor car? No wonder aviators themselves make hideous mistakes in first-aid.

At the moment of going to press Mr. Gates is making as good progress as can be expected, for though nothing is actually broken, he is practically one big bruise all over, and it will certainly be some days before he can get up though he is in no danger unless pneumonia supervenes. Everybody wishes him a quick recovery, for his combined kindness and firmness in managing the aerodrome have caused him to be personally [illegible] every one who has had much to do with him. Mrs. Gates desires, through The Aeroplane, to thank all those friends who on Sunday and Monday sent messages of sympathy and enquiries as to Mr. Gates' progress.

Sunday's Flying.

On Sunday, in spite of it being wet and windy, quite a number of cars belonging to members of the Society of Motor Manufacturers and Traders, who had been invited to Hendon, came out on the off chance of seeing some flying, showing what a huge attendance there would have been if the day had been really fine. Just to oblige them, and to show that Hendon can generally put up some sort of a show, even under the worst conditions, Mr. Noël went up on the 80-h.p. Farman and did a couple of very fine circuits, being thrown about all over the place, and being quite unable to see because of the rain in his face.

Taking it all round, it is quite wonderful what an excellent show the pilots at Hendon manage to put up under the worst possible circumstances, and the fact that they do so is in no small measure due to their personal regard for and the encouragement they receive from Mr. Gates.

A New Pilot for Hendon.

Those who take an interest in the doings of our aviators will be interested to know that Mr. C. Gordon Bell has now definitely joined the Grahame-White Aviation Co., Ltd., and will, in future, be one of the chief pilots at the London Aerodrome, which is to say that we shall in future see a new star in the Hendon firmament, for Mr. Bell is recognised as one of the best pilots at present flying. Fortunately, also, he has recently acquired a sense of responsibility which is likely to prevent him from doing hair-raising tricks, or from flying machines in which he has not perfect confidence.

Lectures at Sheffield.

A special course of four lectures will be given on "Aeronautics" by Mr. L. Blin Desbleds, lecturer on aeronautical engineering at the Royal Military College, Woolwich, at the University of Sheffield, on Friday, November 22nd, and on the three succeeding Fridays. The lecture will commence at 7.30 p.m. Readers of The Aeroplane in the Sheffield district should communicate at once with Mr Walter Smith, the Secretary of the University. The fee for the course is only 5s.

Mr. Sabelli in Bulgaria.

A postcard is to hand from Mr. Sabelli, written from Sofia, and saying that he is now on his way to the front. Mr. Hedley, who went out to Bulgaria with him, did not, it is understood, go out with any intention of joining the Bulgarian service, but on behalf of a well-known British manufacturer, with a view to future business in aeroplanes with the Bulgarian Army. Mr. Sabelli writes that he arrived at Sofia on November 5th, and was starting at once for Mustapha Pasha. The good wishes of his English friends will go with him.

Ex-Balloonists as Aviators.

Several ex-parachutists and balloonists have recently taken to aviation, and apparently are valuable recruits to the new form of aerial navigation. Mr. Herbert Spencer has long been known as a capable flier at Brooklands, and is one of the most regular passenger-carriers there.

During the past few months Mr. F. W. Gooden, formerly with Spencer Bros., and with Mr. Willows, has built a very neat little monoplane with a J.A.P. engine, at Oxford, and has flown it with considerable success. Though he has not got his certificate, owing to the difficulty of obtaining observers at Oxford, he claims to have flown for ¾ of an hour with the J.A.P. engine.

The latest recruit is Mr. V. P. Taylor, the famous Australian aeronaut whose professional name is "Captain Penfold," who has been learning to fly at the Bristol School, and has made excellent progress, although by no means a youngster. Mr. Taylor is a native of King Street, Sydney, and was born on August 2nd, 1874. He received his first infection of aeronautics through seeing a balloon ascent near Sydney about 24 years ago. He had his first balloon built in 1906, and though he has had six years ballooning, he now says that the balloon and parachute are as far removed from a flying machine as the Ark is from an Atlantic liner. One of Mr. Taylor's most interesting performances was on December 11th, 1909, when he attached a bicycle to his parachute and descended thereon at Melbourne, riding back on the bicycle with the parachute after his landing. He should be a distinctly valuable recruit to the number of our pilots.



A Group on the Bristol Stand at the Paris Show. Left to right—Mr. Herbert Thomas, Mr. Collyns Pizey, Mr. Gordon Bell, Captain Bertram Dickson, Mr. Henry Jullerot, and Mr. H. Petre.

The Week's Work.

MONDAY, November 4th.

R.F.C. (Central School).—Calm, damp and hazy. On Avro 406, Capt. Fulton, R.F.A., with Petty Officers Andrews on practice ground 40 mins.; Capt. Salmond 12 mins. over Tidworth. On Avro 404, Capt. Salmond with Lieut. Martyn and Lieut. Hubbard on practice ground.

Eastchurch.—Early morning, school biplane S.34 out and Capt. Gordon, R.M.L.I., giving instruction to E.R.A. Susans, Carpenter Collins, and Shipwright Edwards. Afterwards Edwards doing straights and Susans taxying. Forenoon Lieut. Parke, R.N., put new Short biplane S.55., practically sister machine to S.38., through official trials, carrying E.R.A. James as passenger. Lieut. Spencer Grey, R.N., out flying Deperdussin. Afternoon: School biplane S.34 out, Lieut. Gregory, R.N., two flights, Capt. Gordon, R.M.L.I., and Boatswain Bobbett, R.N., on same machine. Afterwards E.R.A. Susans straights, E.R.A. Freeman taxying. Leading Seaman Russell circuits and Shipwright Edwards circuits. Sub-Lieut. Hewlett, R.N., took up Lieut. Courtney, R.N., on biplane S.38. and made a flight to Grain Island and back. Afterwards Boatswain Bobbett, R.N., flying on same machine. Lieut. Parke, R.N., again out on biplane S.55 with one and with two passengers.

Hendon.—W. H. Ewen School out at 11 a.m. under M. Baumann. Messrs. L. Russell and H. Gist good straights on Monoplane No. 2. During afternoon Mr. Sydney Pickles out with 60-h.p. Caudron two-seater for fine exhibition in wind.

At Bleriot School.—M. Gratien went for certificate and after three good figures of eight at about 100 feet, found lubrication wrong and came down, making a good landing.

At Blackburn School.—Mr. H. Blackburn took the brevet machine for a 10-min. test flight, after which Dr. Christie had half an hour's practice, showing good progress. Then Messrs. Buss, Glew, and Lawrence Spink straights. In evening during Mr. Spink's practice gudgeon pin came loose in Gnome.

Grahame-White School started at 9.45 under Mr. Noel. Mr. Howard Wright doing straights, Lieut. Birch, Mr. Francis and Major Madocks all straights on No. 7 biplane; Mr. Davis rolling on No. 4 biplane, each getting good practice.

At Deperdussin School, in evening, Capt. Macdonell took out taxi 2 for practice. Instructor Brook testing same machine before dark. Master Macdonald up for first time.

Brooklands.—At Vickers School.—Very foggy early, but later Mr. Barnwell on No. 3 for tests, followed by Mr. Soames, who did excellent straights, landing well. In afternoon Mr. Barnwell on No. 5 for long flight over surrounding country at 3,000 ft. Mr. Barnwell then for test flight, followed by Mr. Soames who did some excellent straights. Mr. Knight on No. 5 for good flight over surrounding country about 500 ft. up, then handed over to Capt. Stott who put in excellent circuits at about 300 feet.

At Flanders School.—Mr. Raynham out on No. 6 monoplane for climbing test, with Mr. Dukinfield Jones as passenger, and full tanks. Showed 275 ft. climb in first minute, but did not climb much after as weather was not nice. Up for ¾ hour and reached 1,500 ft. Then took mechanic.

At Bristol School.—Mr. Merriam took Lieut. Empson for tuition. Mr. Bendall up with Mr. Lloyd, Lieut. McLean. Mr. Merriam, Major Forman, Lieuts. Kitson and Rodwell flying.

TUESDAY, November 5th.

R.F.C. (Central School).—Calm and light mist. On Avro 406, Capt. Salmond with Lieut. Martyn 30 mins. on practice ground; Lieut. Abercromby 10 mins.; Lieut. Smith-Barry 10 mins. On Maurice-Farman 403, Lieut. Longmore, R.N., with Lieut. Smith-Barry 5 mins.; Lieut. Smith-Barry 7 mins; Lieut. Longmore, R.N., with Lieut. Freeman, R.N., 15 mins. On Short tractor 413, Major Gerrard, R.M.L.I., 7 mins.

Eastchurch.—No flying up to 4 o'clock, and then school biplane S.34. out. E.R.As. Susans and Freeman straights.

Brooklands.—At Bristol School.—Raining hard. Mr. Merriam testing. Mr. Bendall took Mr. Lloyd and Lieut. Kitson, latter afterwards alone. Mr. Merriam another flight.

Salisbury Plain.—At Bristol School.—Mr. Harrison testing, then with Mr. Featherstone. Mr. England on biplane with Captain Kunhardt, Mr. Harrison taking "Captain Penfo'd." Prince Cantacuzène, two fine flights on tandem monoplane. Messrs. Pixton and Busteed both out in evening.

WEDNESDAY, November 6th.

R.F.C. (Central School).—Calm, rather misty. On Avro 401, Capt. Fulton, R.F.A., 8 mins, with Lieut. Lushington, R.M.A., 30 mins., with Lieut. Young 45 mins, both on practice ground; with Sergt. Jarvis 15 mins., with Leading Seaman Bateman 7 mins., with Lieut. Hubbard 8 mins. Lieut. Hubbard 10 mins.; Lieut. Young 12 mins. On Short tractor 413, Major Gerrard, R.M.L.I., with Lieut. Allen 10 mins., with Air Mechanic Edwards 10 mins., with Sergt. Baker 8 mins., with Air-Mechanic Copper 12 mins., with Lieut. Archdale 7 mins.; Lieut. Shepherd 15 and 5 mins. On Short 401, Major Gerrard, R.M.L.I., 5 mins., with Leading Seaman Prickett 7 mins., with Lieut. Freeman 4 mins., with Leading Seaman Brady 7 mins.; Lieut. Pepper (twice) 11 mins.; Lieut. Allen 8 mins.; Lieut. Atkinson 9 mins.; Lieut. Freeman 11 mins.

Eastchurch.—Early morning, on the school biplane S.34, Leading Seaman Russell went up for his brevet, taking it in excellent style. Afterwards on same machine, Lieut. Gregory, R.N., with Staff-Surgeon Wells, R.N., as passenger. Capt. Gordon, R.M.L.I., with Carpenter Collins, R.N. E.R.A. Susans straights, then circuits; also E.R.A. Freeman straights. Forenoon, Commander Samson, R.N., with Seaman Twelvetrees flew biplane S.38 to Grain Island, and afterwards flew back to Eastchurch on the Short twin-engined monoplane. Sub-Lieut. Hewlett, R.N., with Seaman Twelvetrees flew biplane S.38 from Grain Island to Eastchurch. Afternoon, biplane S.38 out, those flying her being Commander Samson, R.N., with Lieut. Gregory, Paymaster Berne, R.N., Lieut. Courtney, R.N., and Private Edmunds, R.M.L.I. Short triple-twin-engined biplane also out, Commander Samson, R.N., taking up Lieut. Seddon, R.N.; afterwards Lieut Seddon on same machine with E.R.A. Leigh for 30 mins Deperdussin monoplane out with Lieut. Spencer Grey, R.N., several flights with passengers.

Hendon.—At W. H. Ewen School.—At 9.30 a.m. M. Baumann with pupils on monos. Nos. 1 and 2; Lieut. M. W. Noel and Mr. W. Warren good straights at 30 feet on No. 2; Mr. Lawford straights and half-circuits; and Lieut. M. W. Noel and Mr. H. Gist good straights on No. 2. Mr. M. Zubiaga good progress straights on No. 1, and Messrs. R. S. McGregor and E. Prosser rolling and hopping. Mr. N. E Cowling rolling, and Mr. J. Torr (new pupil) his first lesson in controls. During afternoon Mr. Sydney Pickles on 35 Caudron two-seater biplane, and handed over to Messrs. Lawford and Warren.

At Bleriot School.—M. Gratien again went up for brevet and, rising to 200 feet, did most of test there. M. Gratien joined less than two months ago, and has had no breakages whatever. Mr. Welburn for circuits on LB.2, but switched off when doing a nicely-banked turn, and damaged machine.

At Grahame-White School.—Pupils out with Instructor Noel quite early. Lieut. Birch, Mr. Francis, and Major Madocks each flying for 20 mins. straights on No. 7 biplane. Mr. Fowler straights on No. 2. Mr. Davis rolling on No. 2. Afterwards Lieut. Birch circuits with Mr. Noel. Later, Lieut. Birch, Mr. Francis, Major Madocks straights with instructor; Mr. Fowler 20 minutes straights on 35 -h.p. Blériot; afterwards 10 mins. straights on No. 2 biplane. At 12.50 Mr. Noel took Mr. R. H. Carr for flight. In afternoon Mr Noel took Mr. Francis and Lieut. Birch for straights on No. 7.

At Deperdussin School.—Captain Macdonell and Mr. Mapplebeck on taxi 2; Mr. Spratt out with two-seater, making left and right turns at 300-400 feet, for 20 minutes. Instructor Brock took two-seater with Mr. Mapplebeck as passenger over the "Harp" and back. Messrs. Whitehouse and Mapplebeck and Capt. Macdonell all on taxi 2. Later, Instructor Brock took Mr. Whitehouse in two-seater, and afterwards handed machine over to Mr. Spratt again. Engine ran out of oil and disintegrated, but pilot did a fine glide back into aerodrome.

At Aircraft Co.—M. Verrier left Hendon on French-built Maurice Farman for Farnborough, with Mr. St. Barbe.

Brooklands.—At Flanders School.—Mr. Raynham alone for 10 mins., then took up Mr. Jones for 20 mins.

At Vickers School.—In morning Mr. Barnwell on No. 3 for test, then handed over to Mr. Soames, who did excellent curves and landed well. Mr. Knight on No. 5 for test, then Capt. Stott took over, and did very good circuits with right and left hand turns. Mr. Barnwell also on No. 5 for 20 mins., up to 1500 feet. Later in morning, Mr. Barnwell for test on No. 3, then Mr. Soames took over and did excellent curves about 60 feet up. Mr. Barnwell also for three flights on No. 5 testing new propellers. In evening Mr. Barnwell for test on one of the Farmans, its first appearance after repairs.

At Bristol School.—After trial by Mr. Merriam, Mr. Bendall took Lieut. Empson, and Mr. Loyd for tuition with Mr. Merriam. Major Forman and Lieuts. Kitson and Rodwell twice alone each, and Lieut. Rodwell then passed for brevet in first-class style; Mr. Merriam with Mr. Loyd. At 10.30 Mr. Merriam again for test with Lieut. Kitson as passenger flying high. Major Forman and Lieut. Kitson both up alone.

Salisbury Plain.—At Bristol School.—Mr. Harrison with Mr. Featherstone, "Captain Penfold" a good flight. Mr. Pizey with Capt. Kunhardt, and latter for figures of eight. Mr. Pizey behind Mr. Featherstone. Messrs. Pixton and Bus-

teed testing. In afternoon Capt. Kunhardt passed for certificate, landing well. Mr. Pizey took up Mr. Featherstone, and later Lieut. Shekleton, Messrs. Pixton, and Busteed again testing. "Captain Penfold" started for his certificate, but flew too low. Prince Cantacuzene out on monoplane; Mr. Sippe on tandem monoplane.

THURSDAY, November 7th.

R.F.C. (Central School).—Fresh north-west wind, clear. On Avro 406, Lieut. Hubbard 15 mins. On Avro 404, Capt. Fulton, R.F.A. with Air Mechanic Hodgson 30 mins., with Ldg. Seaman Bateman 12 mins.; with Lieut. Lushington, R.M.A., 30 mins., with Petty Officer Andrews 30 mins. and 20 mins., all on practice ground. P.O. Andrews 20 mins. doing straights and landings, 8 mins. doing one circuit. Lieut. Young 20 mins. On Short tractor 413, Maj. Gerrard, R.M.L.I., 12 mins. On Short 401, Maj. Gerrard with Ldg. Seaman Prickett 11 mins. twice and 15 mins. 3 mins. and 14 mins.; Capt. Risk 6 and 9 mins., with Ldg. Seaman Brady 10 mins., with Pte. Smalley, R.M.L.I., 8 mins.; Lieut. Allen twice 7 mins.; Lieut. Atkinson 7 and 9 mins.; Lieut. Freeman 12 and 8 mins.; Lieut. Pepper 10 and 13 mins.

Eastchurch.—No flying till 11.20 a.m. and then Paymaster Berne, R.N., on biplane S.38. Afternoon: Biplane S.38 out, flown by Lieut. Seddon with passenger, Lieut. Malone, R.N., Lieut. Courtney, R.N., Boatswain Bobbett, R.N., Paymaster Berne, R.N., and Private Edmunds, R.M.L.I., Short triple-twin biplane also out with Lieut. Seddon, R.N. Lieut. Spencer Grey, R.N., several flights on Deperdussin. Mr. Frank McClean flying his 70-h.p. Short tractor biplane taking up Staff-Surgeon Wells, R.N.

Hendon.—At W. H. Ewen School.—At 8 a.m., under M. Baumann, Lieut. Noel doing good straights at thirty feet on No. 2 monoplane, and Mr. R. S. McGregor on No. 1. Mr. M. Zubiaga good straights on same machine. After lunch Mr. Sydney Pickles several exhibition flights on 60-h.p. Caudron.

At Deperdussin School.—Taxi No. 2 out for practice with Messrs. Mappleback and Whitehouse, and Capt. Macdonnell.

At Aircraft Company, M. Verrier left on British-built Maurice Farman (a replica of French type) for Farnborough with Lieut. Waldron as passenger. On arrival at Farnborough M. Verrier put both British and French machines through requisite tests.

Brooklands.—At Flanders School.—Mr. Raynham alone for ½ hour, in Staines direction in morning. After lunch, 10 mins. alone, then repeated morning's flight with Mr. Jones as passenger to 1,800 feet. In evening 10 mins. alone.

At Vickers School.—In morning Mr. Barnwell first out on Farman, but found tail required adjustment. Mr. Knight on No. 3 for test, then Mr. Soames took over and did very good curves. Later, Mr. Barnwell for circuits on No. 5. In afternoon, Mr. Barnwell on Farman but found still further adjustments needed. Mr. Knight for test on No. 5 followed by Mr. Soames who, being first outing on this machine, did very good straights, all landings being excellent.

At Bristol School.—Mr. Bendall tests, Major Forman and Lieut. Kitson flying. Mr. Merriam with Lieut. Empson. Major Forman went for brevet and passed. Later, Mr. Merriam with Lieut. Empson. Mr. Bendall with Mr. Loyd, but wind too strong for more school work. In afternoon Mr. Merriam testing. Later with Lieut. Kitson, and Mr. Bendall with Lieut. Empson. Lieut. Kitson alone.

Salisbury Plain.—At Bristol School.—Mr. Harrison out testing, afterwards taking "Capt. Penfold," and latter then twice alone. Mr. England out with Mr. Featherstone. Mr. Busteed out with several passengers. Mr. Pixton also taking passengers. Mr. Pizey taking Mr. Featherstone, and Mr. Harrison, Mr. Rees, Mr. Sippe, and Prince Cantacuzene performed well. Mr. England testing new monoplane.

Liverpool (Waterloo).—Mr. Melly did fine flight on new machine. Flying in direction of Southport, he rose to 1,500 feet and turned inland near Ainsdale, crossed Formby Golf Links, and followed the Cheshire lines back towards Liverpool until near Aintree. Then turned seawards at 3,100 feet and encountered very strong wind, so that machine was almost stationary for ten minutes and had to plane down to lower level before perceptible progress was made. After flight of 26 miles he planed down to hangars, finishing up with neat figure of eight at low level.

FRIDAY, November 8th.

R.F.C. (Central School).—Strong westerly wind, no flying.

Eastchurch.—Lieut. Spencer Grey, R.N., on Deperdussin with E.R.A. Leigh, started at 8.15 for Dover, but owing to engine trouble had to come down at Sandwich. Forenoon, Lieut. Malone, R.N., and Paymaster Berne, R.N., each in turn on S.38. Lieut. Seddon, R.N., with Electrician Deakin, R.N., flew Short triple-twin to Sandwich to assistance of Lieut. Grey. Afternoon, Commander Samson, R.N., flying Short twin-engined monoplane. Short triple tractor twin-engined biplane flown for first time since return from Army manœuvres, Lieut. Malone, R.N., taking up Lieut. Fitzmaurice, R.N.

Farnborough.—Mr. Raynham put Flanders monoplane, with new wheel-base, through hour's test flight, finishing with fine glide from 800 feet. Machine accepted for Flying Corps.

Brooklands.—At Vickers School.—In morning Mr. Barnwell on Farman for test, but machine still required tuning up. In afternoon Mr. Barnwell did pretty flight on No. 5 in very gusty wind, putting in right and left hand circuits, and taking machine up to 2000 ft.

At Bristol School.—Wind very bad all day, and no ascents.

Dover.—Lieut. Seddon, R.N., arrived on triple-twin Short 3 about 4.10 p.m., and shortly after Lieut. Spencer Grey, R.N., arrived on Deperdussin, both flying low.

SATURDAY, November 9th.

R.F.C. (Central School).—Fresh westerly wind, clear. On Avro 406, Capt. Fulton, R.F.A., with Lieut. Lushington, R.M.A., 20 mins. on practice ground; Lieut. Shepherd 5 mins. On Avro 404, Captain Fulton with Air-Mechanic Hodgson 20 mins. on practice ground; Lieut. Hubbard 35 mins.. On Short tractor 413, Major Gerrard, R.M.L.I., 8 mins.; Lieut. Shepherd 14 mins. On Short 401, Lieut. Freeman 40 mins.

Eastchurch.—Forenoon, at 9.45 a.m., Lieut. Malone, R.N., flying Short triple tractor twin-engined biplane. Lieut. Seddon, R.N., with Electrician Deakin, R.N., on Short triple-twin arrived from Sandwich. Lieuts. Gregory, Courtney, Paymaster Berne, and Boatswain Bobbett, R.N., each on biplane S.38. Afternoon, Lieut. Seddon, R.N., with Seaman Ewelvetrees flew Short twin biplane to Dover. Commander Samson, R.N., several flights on Short twin-engined monoplane. Biplane S.38 out with Paymaster Berne, R.N., and Lieut. Courtney, R.N. Mr. Frank McClean out on his 70 h.p. Short tractor biplane, with a passenger.

Hendon.—At Blackburn School.—Mr. H. Blackburn test flight of 15 minutes, afterwards Messrs. Buss and Spink out.

At Grahame-White School.—Lieut. Birch and Mr. Howard Wright straights on No. 7 machine under Instructor Manton, Mr. Francis with Instructor Manton doing straights. At 8.15 Lieut. R. G. D. Small started rolling practice. In afternoon fine flying by Messrs. Gates, Bell, Desoutter, Noel, Travers, and Pickles, as per special report. Sad accident to Mr. Gates spoilt much of evening enjoyment for many.

Brooklands.—At Vickers School.—Mr. Barnwell out on Farman giving instruction to Mr. Corballis, then Capt. Wood on same machine did circuits and took new pupil, Mr. Pollux, for straight lines. Mr. Knight for test on No. 5 up to 800 feet, then Capt. Stott did excellent right and left hand turns, landing well. Mr. Soames then for circuits. In afternoon Mr. Barnwell in very gusty wind up to 2,000 feet doing right and left hand turns, and later in afternoon out again for very pretty flight, going up to close on 4,000 feet.

At Bristol School.—Lieut. Kitson passed for his ticket. This makes third pupil to qualify this week at Bristol School at Brooklands, and speaks well for assiduity of Messrs. Merriam and Bendall. Mr. Merriam out afternoon, but weather not good. Later with Mr. Featherstone and Lieut. Kitson.

Mr. Petre on Martin-Handasyde monoplane, whilst finishing a spiral glide, made miscalculation and had a fall, but was luckily unhurt, the only damage done being to the machine.

In altitude competition, owing to gusty wind, only two competitors turned out, with result that Mr. Barnwell on Vickers monoplane won with 3,800 feet. Mr. Hawker also started on Sopwith biplane, but omitted to start barograph.

Dover.—Lieut. Seddon, R.N., left for Eastchurch about 9.15 on Short in a freshening wind, but flying steadily.

Salisbury Plain.—At Bristol School.—Mr. Pizey with Mr. Rees. Lieut. Williamson, R.N., an old pupil, for practice flight. Mr. Pizey with "Capt. Penfold." Mr. Sippe flying.

SUNDAY, November 10th.

Hendon.—At Blackburn School.—Pupils assembled, but bearing in mind precarious condition of Mr. Gates, the racket of an engine in his vicinity was not to be thought of.

At Grahame-White School.—Being very boisterous afternoon there was little flying. Mr. Noel, to save disappointment, went up on 80-h.p Farman machine.

Brooklands.—At Vickers School.—In morning, Mr. Barnwell on Farman for test, then handed over to Mr. Corballis, who put in excellent straights. Mr. Barnwell also out on No. 5 for test, then handed over to Mr. Soames.

Dover.—Lieut. Spencer Grey up on Deperdussin in very high wind about 4.15 p.m. for about 10 mins.

The S.M.M. and T. Dinner.

The annual dinner of the Society of Motor Manufacturers and Traders, which inaugurates the Olympia Show each year, took place on the 6th at the Savoy, and proved quite the most successful function of the kind which has yet happened. The Hon. Arthur Stanley, M.V.O., M.P., proposing the toast of the Motor Industry, said that although people complained of the invasion of cheap American cars, he personally wanted cars as cheap as he could buy them, and announced that the Royal Automobile Club intended to hold a race for small cars in the Isle of Man next year, so as to encourage the production of a good, low-priced car. He regretted that Mr. Manville, the Chairman of the Society, was going to retire, but that as he intended to enter Parliament, he would be a valuable friend to motoring. Mr. Stanley also referred to the high price of petrol, and said that the R.A.C. intended to conduct trials with fuels which could be used in conjunction with or instead of petrol. Mr. Manville made a suitable reply. Mr. Mays-Smith proposed the toast of the Guests, which was responded to by M. A. Peugeot, as Chairman of the International Association of Motor Manufacturers, who referred to the supremacy of the internal combustion engine in the air. Mr. D. Citroen, in an eloquent and moving speech on the many excellencies of the chairman, convulsed the house by announcing that he had discovered that the secret of Mr. Manville's ability to lead men, as shown by his holding the chairmanship for seven years, lay in his possessing "the glad eye." As Mr. Stanley and Mr .Manville have both been members of the Committee of the Royal Aero Club, and as Mr. Peugeot is largely interested in the aeroplane industry in France, it will be seen that aviation already attracts the attention of the most important people connected with motoring.

The Book of Vickers, Ltd.

One of the handsomest series of illustrations which has yet appeared in connection with a firm making aeroplanes is the illustrated booklet issued by Vickers, Ltd., which illustrates the products of the various departments of that colossal concern. One of the troubles of most aeroplane businesses in this country is that they lack the necessary funds and organisation to produce machines on the same scale as the Continental makers, but a glance at the Vickers' book at once removes any doubt as to the firm's ability to turn out aeroplanes by the hundred when orders come along. Incidentally, it may be well to note that the Vickers Aviation Department, of which Capt. H. F. Wood is the head, have until recently been devoting themselves entirely to experimental work instead of simply turning out machines which flew no better than those of anyone else, which, of course, they could have done quite easily if they had wished.

In this book are shown British and foreign warships of various types, floating docks, passenger steamers, ice-breakers, enormous naval guns and small size quick-firers, turbine and ordinary engines, electric generators, Wolseley cars, Pullman railway cars, and last, but by no means least, the very successful Vickers No VI., which, incidentally, makes as handsome a picture as any in the book. Owing to the obvious expense of this production one assumes that the firm does not wish to circulate it broadcast to catalogue hunters, but one feels sure that those who are seriously interested in the highest class mechanical work can obtain copies by writing to the Aviation Department of Vickers, Ltd., and mentioning The Aeroplane.

A Worthy Farman Product.

One of the most beautiful productions it has yet been the writer's luck to see is the aeroplane catalogue just issued by Farman Bros. The catalogue is divided into three parts. The first is entitled "The True History of the Aeroplane." This is written by the well-known journalist M. Georges Prade, and forms a humorous introduction to the catalogue proper. It consists chiefly of the mythology of aviation, deliriously mixed up with modern instances and illustrations, the latter being beautiful pen-and-ink work. Then follow some excellent photographs with a description of how to handle a Maurice Farman biplane; after which there are photographs of the Farman workshops, which cannot fail to impress one with the magnitude of the business done by the firm. Finally, there are further photographs of the various types of Henry and Maurice Farman machines in their various phases of activity on land and water, and in use in Tripoli, Morocco and China. Those who read French will be vastly entertained and instructed, and those who cannot will certainly appreciate the illustrations. It is well worth while writing to the firm's Paris address, 167, Rue de Silly, Billancourt, for a copy of the list, which will no doubt be sent if the recommendation of The Aeroplane is mentioned.

Efficient Plane Surfaces.

Machines treated with the well-known Cellon Dope have scored heavily this year. Both first prizes in the Military Competition won by Mr. Cody, Mr. Sopwith's win on the Blériot in the Aerial Derby, Mr. Cody's Michelin prize, Mr. Hawker's Michelin prize win on the Sopwith biplane, Mr. Raynham's capture of the Shell Trophy on the Burgess-Wright, Mr. Valentine's wins on the Bristol at Hendon all stand to the credit of machines doped with Cellon, besides a number of fine performances such as Mr. Raynham's record-breaking flight on the Avro in his attempt on the Michelin prize, the fine flights done by the Naval pilots on Short machines at Eastchurch and on manœuvres, and in the Firth of Forth. Makers are now realising the important effect a really good plane surface has on the efficiency of their machines.

British Machines to go Abroad.

It will be recollected that some time ago the firm of Hewlett and Blondeau gave up school work at Brooklands and took possession of the former Mulliner works at Vardens Road, Clapham Junction, intending to build there aeroplanes of various types for various people. The two Farman biplanes built by the firm in their sheds at Brooklands have always been recognised as two of the very best machines of this type ever turned out, and it was, therefore, not surprising when Hanriot (England), Ltd., commenced business they should place orders for British built Hanriot monoplanes with Hewlett and Blondeau, knowing that the work would be of the very finest quality. At the present moment this firm has a single-seater Hanriot built entirely of British material and by British workmanship, and they have also another single-seater and a two-seater nearly finished. In all these the workmanship is fully up even to the high class of the French-built Hanriots, which is to say that it is of the very best.

The sad part of the business is, that in consequence of having had no recognition from the authorities in England, in spite of their brilliant performances in the Military Competition, and in spite of the entire freedom of the Hanriot machines from serious accidents, all these three machines are being sent to France for sale to foreign governments. Mrs. Hewlett and M. Blondeau pointed out to the writer that financially this result is of no interest to them because they are paid for the work by contract, so that it does not matter to whom the machines are sold, but Mrs. Hewlett points out how sorry she is personally to see British-built machines being sent out of the country for the defence of other countries, when this country is in such need of fast and good aeroplanes in both services, and she is most emphatic in stating that she has no wish to build machines for other countries as her desire is to further the science of aviation in Great Britain.

One may point out that the Hewlett and Blondeau firm is not the only one in this country which obtains more recognition abroad than at home, as instance the Bristol order for twenty-eight machines for Italy, besides others for Spain, Germany, Russia and Bulgaria. It is also strange that A. V. Roe and Co., despite the excellent performances of the three machines already delivered by them to the Army, have no intimation that other orders are to follow from that source, though their prospects of orders from the Portuguese Government are already considerably better than promising.

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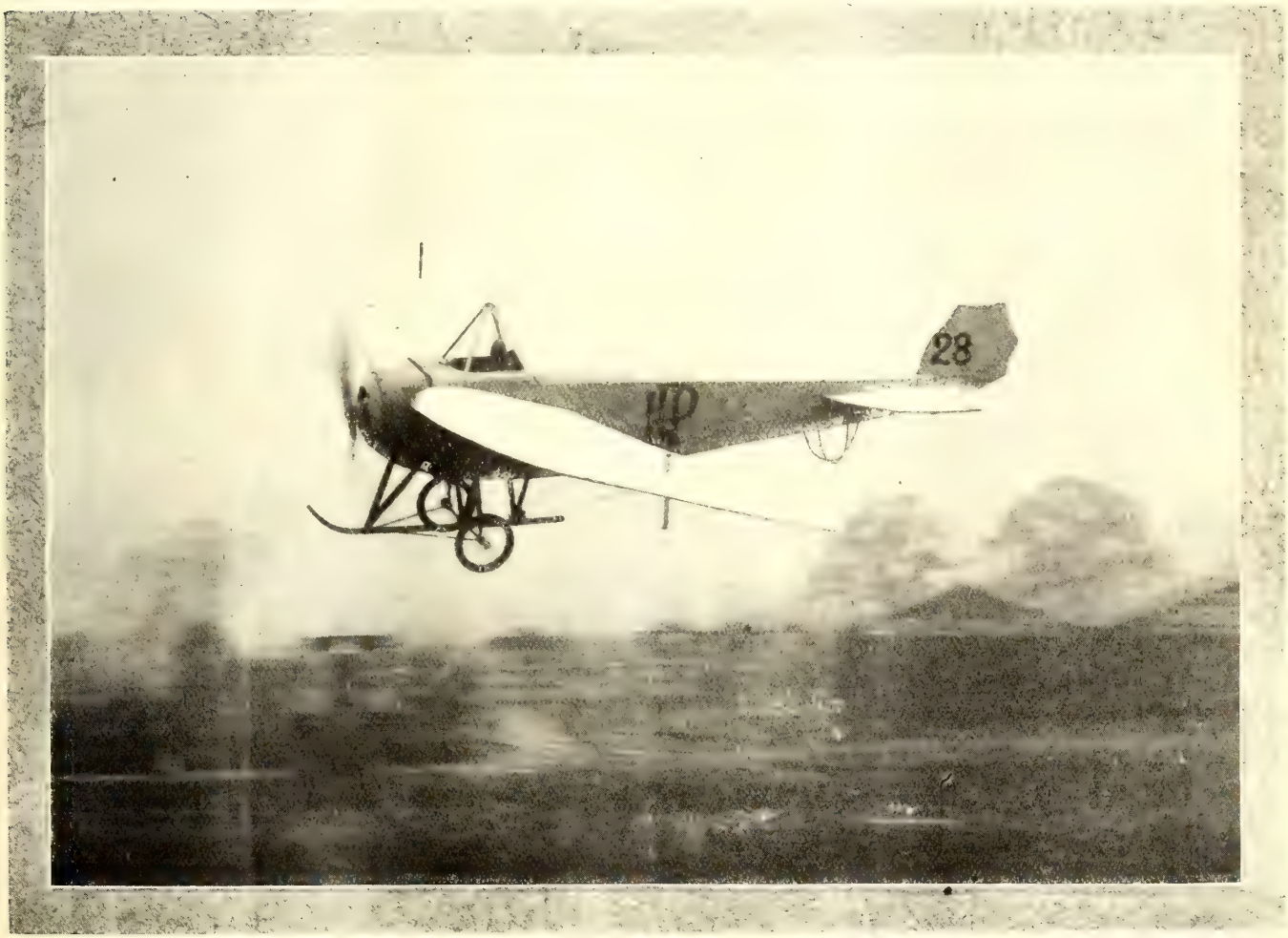
THE AEROPLANE

1D WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [REGISTERED AT THE G.P.O. AS A NEWSPAPER.] THURSDAY, NOVEMBER 21, 1912. No. 21.

AUTOMATICITY.



The Handley Page Automatic Stability Monoplane Flying at Hendon on Sunday last. Below may be dimly seen the Judge's Box, and some of the sheds.



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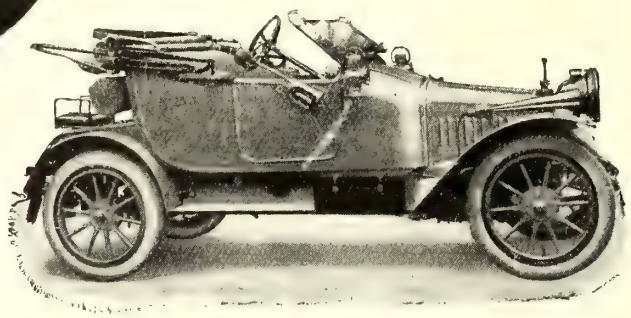
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The Royal Flying Corps and its Monoplanes.

The Committee which was to decide whether it is fit and proper that the pilots of the Royal Flying Corps shall fly monoplanes seem to be hastening slowly in making up their minds. Meantime we are getting further and further behind in our preparations for aerial defence. The writer uses the word preparations advisedly, for in no sense can our aerial defence force be said to exist. It is not even a force in embryo, hardly so much as a protoplasm, compared with what it must be in the near future.

At present we are merely beginning to think about preparing for dim eventualities, and the few machines we have got are just odd samples with which to experiment, and train a few pilots who will, with practice, be able to go on to more advanced experiments with the real war-planes of the future. Therefore it seems a hopelessly feeble policy to bar all experimental work with some of the most successful machines in the world just because someone is afraid that some one may be hurt. The present position smacks too much of forbidding a child to go into the water till it can swim and at the same time calling in a committee of specialists to decide whether water is wet.

No one can accuse the writer of carelessness of human life, for probably few of those connected with aviation have managed to get themselves so thoroughly disliked through writing and speaking their minds openly on the subject of machines which have appeared dangerous to fly. If he had seen fit to "bow the knee in house of Baal," "speak words pleasing unto the King," and so forth, this paper might quite conceivably possess to-day a larger revenue from its advertisements, but it would also have possessed considerably less influence in those quarters which really matter, and there is always the chance that a few bad accidents may have been saved by the criticisms and warnings which have appeared from time to time. Therefore he may perhaps be permitted to criticise excessive caution, especially when that caution is obviously being exercised in a wrong-headed way.

What the Flying Corps needs are fast machines. Fast machines are no use without pilots. Pilots cannot be trained to fly fast machines unless they practise on them. It has often been stated that biplanes can be made to fly as fast as monoplanes, and that monoplanes can be made to carry as big weights as biplanes; but at the present moment the facts remain that the majority of fast machines are monoplanes, and that fast monoplanes are doing very well in foreign countries and among our own civilian aviators. Also, a well-built monoplane is safer than a badly-built biplane, as may be seen by the vast number of fatal accidents on German biplanes, compared with those on French monoplanes. How anyone who has even a rudimentary knowledge of aviation can imagine that any committee is going to decide that monoplanes are dangerous because they are monoplanes, passeth all understanding. One might as well ask a committee to decide that all cantilever bridges are dangerous because they are cantilevers, and only allow box-girder bridges to be built in the meantime.

Some day perhaps there will be a horrible air tragedy through the wings of one of the wonderful "B.E." biplanes collapsing because of the internal work caused by its excessive warp, or through the fuselage breaking in the air owing to the wrenching action of the steerable tail-skid, and then presumably a committee will be asked to decide whether all biplanes are dangerous. And all because no one in authority took the trouble to work out whether the opinions quoted in this paper a few weeks ago are correct or not, the opinions being that balanced ailerons and a solid wing are safer than a warping wing, and that the fuselage of a machine never ought to do anything except carry the tail, the aeroplane being a bird and not a kangaroo.

However, the present position is that the Royal Flying Corps have about a dozen monoplanes of varying quality rotting in their sheds for lack of use, and daily becoming of less value as design advances. At Lark Hill alone there are eleven monoplanes These are. two 50-h.p. Bristols of the best older type with long fuselage and fixed tail plane; one 80-h.p. Bristol, one of the Military Competition machines which was damaged by the late Mr. Bettington and repaired; the Military Competition tandem 70-h.p. Blériot, quite a modern and a very fine machine; the late Mr. Cammell's ancient two-seater side-by-side Blériot, a useless and dangerous old thing that ought to be burnt; three modern Nieuports, one of them of 100-h.p., all very fast, tricky to fly, and difficult to land, but quite possibly the most valuable machines we have for certain specific work in war, when pure speed is needed; and three Deperdussins, two at least of modern British build. Practically all these are really useful flying machines, and if used with due care and precautions should be most useful in training pilots for high speed work. Actually at the moment we have not sufficient trained military pilots to use them in time of war, and if they are not used and worn out in practising during the next six months they will have to be scrapped as obsolete.

Apart from this consideration it is quite an open secret that the officers of the Royal Flying Corps are anxious to fly these machines, and that the military authorities at the War Office are equally desirous that they should do so. The prohibition seems to come entirely from the civilian authorities, who either lost their heads or their nerve after the two double fatal accidents just before the manœuvres. Having placed this ban on all monoplanes they seem afraid to remove it unless they have the backing of a Committee, on to whom the responsibility can be shunted if any more accidents follow the issue of permission to fly monoplanes. If people in their position lose their nerve over half a dozen easily-explained deaths one wonders what they would do if they had to take the responsibility for such appalling blunders as occurred in South Africa.

If a man is to occupy a high place in the Government of his country and to be worthy of that high place, he must be as ruthless as a Bismarck or a Savoff, and if the end to be obtained is for the good of the country he must not permit drawing-room humanitarianism to interfere with the means to that end. Human lives must have no value as such, but must be regarded purely economically. No undue risks must be taken, because every soldier is worth so much in pounds, shillings, and pence, and an officer's life is worth more than a private's simply because of what he cost to train. Still, we throw lives away on less valuable work every day, and no one troubles, except the relatives of the late deceased.

> A scrimmage in a Border Station—
> A canter down some dark defile—
> Two thousand pounds of education
> Drops to a ten-rupee *jezail*—
> The Cramner's boast, the Squadron's pride
> Shot like a rabbit in a ride.

If we can afford to waste good men in chasing Pathans out of a country which can never be a white man's country, and is of no value except as an outlet for our commercial activities, it seems purely a matter of simple arithmetic to prove that we can afford to let those officers who volunteer for the Flying Corps take certain risks, which they know far better than any civilian committee can teach them, in increasing the efficiency of an arm which is a vital necessity for the defence of our own country.

The Secretary of State for War and his assistants may console themselves with the idea that there is far less risk in

flying the worst monoplane any modern manufacturer is likely to turn out than there is in taking a casual evening stroll outside Peshawur. The officer whose life is worth preserving does not do either; he studies his job first, and gets to know enough not to fly an obviously dangerous machine, and not to go walking after dark on the North-West Frontier. Accidents will happen in both cases, but if the Army is left to itself it generally knows how to manage its own business fairly well in matters of detail.

Therefore, if the Royal Flying Corps wants to fly monoplanes, let it do so. By all means condemn certain machines or parts which are obviously wrong in design or material, and let committees of "experts" sit on these, but do let us have some common sense on the broad question of whether a monoplane is unsafe because it is a monoplane.

Meantime, one would like to know what the Committee is doing and when its report may be expected. At present it rather seems to fancy that it is a Royal Commission and that its report will be in good time if published two or three years hence.

The Royal Aero Club.

The following aviators' certificates have been granted:—356, Capt. Oliver de Lancey Williams (2nd Royal Welsh Fusiliers) (Bristol biplane, Bristol School, Salisbury Plain); 357, Capt. Herbert Musgrave, R.E. (Bristol biplane, Bristol School, Salisbury Plain); 358, Lieut. the Hon. John David Boyle (Rifle Brigade) (Bristol biplane, Bristol School, Brooklands); 359, Frank William Lerwill (Bristol biplane, Eastbourne Aviation School, Eastbourne); 360, Lieut. R. F. A. Trotter, R.N. (hydro-aeroplane, Lakes Flying School, Windermere); 361, Herbert Russell (Leading Seaman, R.N.) (Short biplane, Royal Naval Aviation School, Eastchurch); 362, Lieut. Reginald M. Rodwell (1st West Yorkshire Regt.) (Bristol biplane, Bristol School, Brooklands); 363, Capt. Frederick George Kunhardt (74th Punjabis) (Bristol biplane Bristol School, Salisbury Plain); 364, Major Arthur Baron Forman, R.F.A. (Bristol biplane, Bristol School, Brooklands); 365, Lieut. Richard B. Kitson (58th Rifles F.F., I.A.) (Bristol biplane, Bristol School, Brooklands).

A letter from the Aero Club of America requesting the Club to give its sanction to the issuing of an aviator's certificate to Mr. P. H. Reid, a Canadian, was considered, and the necessary permission granted.

The committee unanimously decided to accept the following as British duration records:—

1912. October 24th, 3.12 p.m., F. P. Raynham, Avro biplane, 60-h.p. Green, 7 hrs. 30 mins.

1912. October 24th, 5.40 p.m., H. G. Hawker, Sopwith biplane, 40-h.p. A.B.C., 8 hrs. 23 mins.

Brig.-General David Henderson, C.B., D.S.O., has been elected a steward of the Club.

The annual dinner of the Club will take place in the month of February, 1913.

The International Aero Show held by the Society of Motor Manufacturers and Traders, under the auspices of the Royal Aero Club, will open on February 14th, 1913, and terminate on February 22nd.

The Aeronautical Society.

The second meeting of the Society for this session will be held on Wednesday, November 27th, at 8.30 p.m., at the Royal United Services Institution, Whitehall, when Lieut.-General Sir James N. Grierson, K.C.B., D.S.O., will preside. Brig.-General F. G Stone, R.A., will read a short paper, to be followed by a discussion on "Aircraft as Target for Artillery and Rifle Practice."

Members are requested to note that under the rules they are permitted to introduce visitors to general meetings.

The third meeting will be held on December 11, when Mr. E. H. Harper will read a paper on "The Mathematical Theory of Aeroplane Stability."

Sheffield Model Aero Club.

A special lecture, illustrated with lantern slides of hydro-aeroplanes, will be given by Mr. V. E. Johnson, M.A., on Thursday, November 28th, at St. Paul's School-rooms, Cambridge Street, at 8 o'clock Chairman, Mr. E. W. Colver. Admission: 1s., 9d., and 6d. Members free.

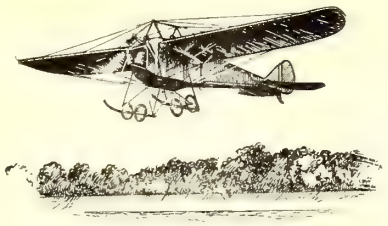
From Portugal.

Writing from Lisbon, Mr W. H. Sayers says:—"I do not think I told you the actual cause of the engine failure on the Avro. When I got the engine down I found No. 7 tappet rod guide scored very badly. Now No. 7 is the outside cam and the guide is the outside one in the cam-box, and I have once before found a new Gnome with this guide very stiff. It is very easy to give this guide a knock if one is not very careful assembling. The timing gear cover of this Gnome had never been off since it left their works, and there was no question of its not getting oil. It looks eminently worth while examining this point in all new Gnomes and easing off any guide showing traces of stiffness.

"In a previous letter I mentioned an all-steel Voisin out here. This was finally erected and ready for trial when Perry made his 'ammerissage,' but the pilot did not like the grounds and his engine was not running well, so he went home. They got another pilot, named Morel, out, and he got a flight or two in on Friday and yesterday (Saturday) morning. Yesterday evening he went out with two passengers. The machine would not climb, and he turned and came back. Coming in very low, he struck the wall, which is about 9 ft. high by 15 in. thick, of stone and mortar, and was considerably damaged. The motor (70-h.p. Gnome) escaped, as did the passengers. Morel got a bruise or two. The rest is the most curious tangle of steel tube, wire, and fabric that I have ever seen, and its appearance, perched on the top of the wall, was ludicrous in the extreme. I have not seen the machine in actual flight, but I gather that its flying is not anything to be proud of."



Some of the E.R.A.'s lately become aero-engine mechanics at Eastchurch. Several of them are in training as pilots.



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The Sheerness Airship Affair.

During the past week-end the lay Press has been paying quite a good deal of attention to the incident of October 14, when, as announced in The Aeroplane some weeks ago, an airship of some sort passed over Sheerness. Thanks to Mr. Joynson-Hicks, always to the fore where aerial defence is concerned, the question was raised in the House of Commons on Monday last, when, as was expected, the Minister of State for War gave the usual evasive answers.

The writer is able to state that in both the Navy and Army no doubt exists as to the presence of an aircraft over Sheerness but as no ocular proof is available any official confirmation is impossible.

The Aeroplane tenders its thanks to the "Daily Mail," "Evening News," "Evening Standard," "Daily News," "Birmingham Gazette," "Nottingham Guardian," "Yorkshire Telegraph," "Sheffield Telegraph," and "The Daily Sketch," which had the sportsmanship to acknowledge the source of their first information on the subject.

The questions and answers, as given in the House, are as follows :—

Army Aeroplanes.

Mr. Joynson-Hicks asked the Secretary of State for War (1) how many aeroplanes we possess capable of flying at speeds sufficiently in excess of the Zeppelin dirigible to be able to circle round and successfully attack one, and how many Army pilots we have capable of flying such aeroplanes at such high speed; and (2) whether the Zeppelin dirigible can attain a speed of nearly sixty miles an hour and remain afloat for thirty hours at a stretch; and whether, as against this, we have any dirigible whatever of any practical value.

Colonel Seely: Zeppelin airships are reported to have attained a speed of between fifty and sixty miles an hour, and some of the later types have accomplished distances of 800 miles in thirty hours without descending to earth. With regard to the rest of the questions I do not consider it expedient to make any statement with regard to methods for meeting attacks from hostile aircraft.

[One may, perhaps, be permitted to supplement Colonel Seely's information by the statement that we have certainly not more than five, and possibly not more than one, aeroplane capable of out-manœuvring a Zeppelin, and that we have not one pilot who has flown that one very fast machine regularly. —Ed.]

Mr. Joynson-Hicks: May we not know how many air pilots we have capable of flying at the highest speed?

Colonel Seely: Yes, on a detail of that kind I will be most glad to give information to the House

Mr. King: Is it not the fact that the German Government have given up the Zeppelin because aeroplanes are so much more effective?

Colonel Seely: No, that is not quite the case.

Mr. King: What is quite the case?

Zeppelin Airships (Sheerness).

Mr. Joynson-Hicks asked the Secretary of State for War whether he could give any information as to a Zeppelin dirigible passing over Sheerness on the night of October 14, about 8 p.m.

Colonel Seely: I have communicated with the Admiralty with regard to this matter, and understand they have no definite information.

Mr. Joynson-Hicks: Have they any information at all on the matter?

Colonel Seely: I would ask my right hon. friend the First Lord of the Admiralty to reply to that. I understand that they have no definite information.

Mr. Joynson-Hicks: Will the right hon. gentleman reply now?

The First Lord of the Admiralty (Mr. Churchill): I should like notice of that question.

Mr. Wheeler: Is it not the fact that the Government received a report of the whole matter from Sheerness and the aeroplane station at Eastchurch?

Colonel Seely: No. I would not like to say that a formal report had been received by us. That is not the case. We have made investigations into the matter, but we have no definite information as to whether the fact is as stated or not.

Mr. Joynson-Hicks: Have you had any report from Sheerness as regards the allegation in the question?

Mr. Churchill: I am not aware that any reports have been received, but inquiries will be made.

Notes on Some Engines at the Paris Show.

The following notes on some of the more noticeable engines at the recent Paris Show, though perchance a trifle overdue, may be of interest for purposes of reference in the future. Since the Show some quite notable flights have been made on the Rhône motors.

The Gnome showed a 160-h.p. and a 140-h.p., which are respectively a double 80-h.p., and a double 70-h.p., each having 14 cylinders. The 80-h.p. seems to be generally recognised as the best engine the firm has turned out, and I gather that the 70-h.p., which has the reputation of being the worst, can be greatly improved by fitting new valves of the same type as the 80-h.p. The 50-h.p. remains as we have long known it, and seems to justify its being known as the "type Omega," for there does not seem to be any way of improving it without making it a different engine altogether.

The Anzani, while remaining the same outwardly, is probably the most improved aero-engine in the world. The new "Y" type 35-h.p., as also the new 45-h.p. and the 60-h.p., have been giving very general satisfaction when properly understood and looked after. In England we know the excellent work done by the 35-h.p. on the Deperdussin monoplane and Caudron biplane and more recently on the Melly monoplane, and by the 45-h.p. on the Caudron monoplane and biplane, and it is only surprising that no British firm has taken up the British manufacturing rights for this engine.

The Clergêt firm show was as neat as ever, and their large 6-cylinder 200-h.p. engine looks a fine piece of work.

The de Dion had a novelty, for them, in an 8-cylinder air-cooled "V" engine of 70 h.p., which looks something like a Renault. When one recalls the marvellous work done by the early de Dion air-cooled engines on motor tricycles it gives one considerable confidence in the possibilities of their latest product. As usual, the workmanship is magnificent. The firm also show some water-cooled engines, which do not present any great novelty.

The Renaults are fairly familiar in this country, owing to their use in the Maurice Farman machines, and their reliability is shown by their holding the World's Record for duration two years running, Fourny's 13-hour flight this year being a fairly convincing performance. That they are not entirely perfect—or rather not quite fool- and neglect-proof—is shown by the several breakdowns which have occurred to Renaults belonging to the Royal Flying Corps, such as pushing a connecting-rod through a crank-case, and blowing off a cylinder now and then, but as it is alleged that these troubles have been assisted by an otherwise laudable desire on the part of our Government to cut down the price of the official lubricating oil by sundry pence per gallon, one can scarcely blame the engine. The new 100-h.p. 12-cylinder engine has been doing good work in the big Astra hydro-biplane, and seems as sound a job as the 70-h.p.

The Rhône is a new rotary engine which should appeal to those who like rotary engines. It is beautifully made and designed, the rockers of the mechanically-operated valves being mounted on ball bearings, and the push-rods channelled out to make them X section girders.

The Rossel-Peugeot, which has been doing good work in M. Ducrocq's machine at Brooklands is, if possible, better made than ever, and it is now an engine proved by numerous excellent performances.

The Salmson, or Canton-Unné, is another engine familiar in this country, thanks to various big flights made by the Bréguet machine, such as Mr. Moorhouse's cross-Channel flight "á trois," and the Comte de Montalent's altitude record with a passenger on board. When properly understood and looked after it is undoubtedly a good engine in its original form. Whether the latest idea of laying the engine with its cylinders horizontal and the shaft vertical, and then driving a geared-down propeller with a long shaft from a bevel gear, is likely to be as reliable remains to be proved. At any rate, the makers have the courage of their convictions, for they showed a colossal 300-h.p. engine of this type, as well as a 110-h.p. similar to that in the new Bréguet at Hendon.

The Burlat, Verdêt, Laviator, Favata, and sundry other engines which have appeared at previous shows, turn up again like hardy annuals, without any particular performances to their credit, and without noticeable alterations.

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A Military Specification.

BY W. E. de B. WHITTAKER.

If aviation as a science is in its infancy, as a business it scarcely exists. The expense of proving the efficiency of a new machine is so great that the price of later machines is almost prohibitive if a profit is to be made. Following so rapidly on the birth and growth of the automobile trade, certain of the least desirable attributes of that calling have crept into aviation, and show signs of remaining there for some time to come. New industries invariably attract a strange class of man to whom variety is the bread of life and to whom stability has no appeal. Thus a certain process euphoniously termed "hotstuffing" has intruded, and further reduced the possibility of profit. Again, the field open for commerce is restricted in extent. Despite the glowing prognostications of the early pioneers, the private individual shows no signs of making many purchases. Wealthy Governments are the only resort. Unfortunately for the English manufacturer such foreign States as matter have within their boundaries many aeroplane constructors of high excellence who are capable of fulfilling all requirements. So, perforce, the English firm must look to Great Britain for encouragement.

It is, I think, generally acknowledged that this country is some distance behind so far as general progress in aviation is concerned. One is assured, and it is probably true, that there are individual machines in this country equalling in efficiency any of foreign make. But a few isolated examples compare badly with general success. On the other hand, the British constructor is handicapped by having no clear indication of what type would meet most favour in official eyes, and an already financially decrepit trade cannot afford to make continued experiments at great cost with no immediate prospect of reward. No publicly printed specification of the military aeroplanes desired by the Army has yet been issued. If a machine is ordered the contractor receives a type of specification demanding certain attributes. At the same time another maker may design and build another aeroplane which will in every point beat the contractor's machine, yet it is not purchased. We have little time and much work to do and ordinary routine must be thrown aside. If we clamour for machines at one moment and refuse to buy the next little good can be done. One excuse put forward for the non-publication of an official specification is that it would reveal confidential matter such as wireless fittings. This is certainly unreasonable, as only the broadest rules would be laid down in such a specification, and in any case when the machine is built it is open to the public view daily at flying hours.

The regulations drawn up for the late Military Trials was some attempt in the right direction, but the looseness of drafting and a certain degree of contradiction destroyed their value. One is told by various constructors of the great difficulty in clearly understanding the requirements of the Committee. The results of the Trials and the trend of later events show of how little importance the whole affair was. The very machines which in accordance with the official rules were placed highest in the list of awards have not led to further orders. The supreme victor, in fact, has not yet been purchased, even at the low price compulsorily enforced. The nation has learnt much, but the trade has gained nothing so far as business is concerned.

At the present moment when aeroplanes are desired by the Army in great numbers, and immediately, a specification should be issued broadcast stating briefly and clearly the necessary points of a military aeroplane, and stating that all machines passing the tests laid down should at once be purchased by Government. This would at the same time silence harmless lunatics who bother the War Office from day to day with impossible plans for still more impossible aeroplanes. Comparative peace would descend on certain overworked officials.

The leading foreign nations have already made known their wishes as regards design and flying attributes, and the road of foreign manufacturers is clear. The two specifications issued by the U.S. Army which we published in these pages last week are a model of clearness. Moreover, all the conditions are possible of satisfaction by one machine.

It is obvious that more than one set of specifications



Mr. Bernard Isaac, London Manager of the Grahame-White Aviation Co., Ltd., with M. Verrier on the British Maurice Farman which flew so well during last week-end.

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is necessary, according to the types of machines desired. The light, fast machine for strategic reconnaissance is clearly different in form from that of tactical reconnaissance and weight carrying. And behind each specification there must be tests to determine a uniform factor of safety to a degree stated. That the points required may be exacting is no excuse for a maker's grumbling so long as any one machine has passed the requisite tests. Theoretically what one man can do is possible to all the others.

To take the aeroplane designed for strategic reconnaissance—to obtain the maximum of speed and lift it must be single-seated. The machine with the greatest effective arc of view (i.e., downwards and forwards) should be given preference if it has passed all other tests efficiently. Further preference under the same conditions should be given to British built engines and aeroplanes.

It is not too much to insist that such a machine should be capable of rising at the rate of 300 feet a minute for five minutes when loaded for a three hours' flight. The aeroplane must be capable of landing on and rising from a selected and stated piece of ground. A rolling test as such is hardly justified, as rolling is not an operation necessary to the execution of war.

All machines delivered should be constructed in such manner that in the space of thirty minutes it can be packed in a case 20 ft. by 10 ft. by 8 ft. Assembly should certainly not take longer than forty-five minutes. For machines of this type rapid assembly and dissembly are essentials. The various points of attachment should be marked in such manner that the aeroplane can be safely erected by an untrained crew under the supervision of the pilot.

So far as the engine is concerned certain rules can be imposed with definity. A provision that after a certain period all engines supplied shall be built in Great Britain would satisfy those manufacturers who approve of Free Trade in theory alone.

It is essential that the engine shall be capable of being started by the pilot without exterior aid and without getting out of the aeroplane. Rule 6 of the second American specification is also of importance, and I therefore give it in full. "The engine must be capable of throttling to run at reduced speed."

It should be possible to silence adequately all aeroplane engines supplied without making any appreciable difference in the power supplied. Some few years ago motorists believed that an open exhaust increased the power greatly. Actually it has been proved that a properly designed silencer has extremely little adverse influence.

(To be Continued.)

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," War Office, November 8th:—

Establishments.—Royal Flying Corps, Military Wing.—Second Lieutenant C. G. Bell, Special Reserve, is appointed to the Reserve, November 9th.

Admiralty Appointments: Lieuts. W. Parke and J. W. Seddon to the "Actæon," additional, as flying officer, to date September 2 and November 2, respectively.

FRANCE.

On November 11th, at Juvisy, M. Janoir put four 50-h.p. Gnome Deperdussin monocoques through their reception tests before a military commission. They are to be dispatched to the centre of aviation at Oujda, in Morocco.

Colonel Estienne has recently watched with interest several flights on the Morane Saulnier monoplane, which holds the height record. He says that it represents the ideal machine for artillery work. The speed with which it can be packed or assembled is said to be extraordinary.

Another military landing ground was added to the list last week when the Ministry of War took over the newly-formed aerodrome at Saint-André-de-Cubzac, in the Gironde. Will Great Britain never awake from its pathetic slumber and copy the best examples of modern progress, if it cannot initiate?

The flying pay of pilots in the French Army is as follows:—officers, 10 francs a day; N.C.O.'s, 8 francs a day; and men, 1 franc a day.—W.

After an apprenticeship of less than six weeks at Buc Lieut. Vanduick has just passed for his superior brevet on a Farman biplane, doing all the tests in three days, his first cross-country circuit being Buc, Chartres, Orleans and Buc, and the second Saint-Cyr, Chateau-Renault, Chartres, Saint-Cyr. This is about the quickest superior brevet on record.

GERMANY.

The Ministry of Marine have purchased from an Austrian engineer the plans of a new type biplane. It is to be fitted with an engine of 150 h.p., and is expected to fly at over 70 miles an hour. It can at will be transformed into an hydro-aeroplane.

It is rumoured that the authorities intend to build large hangars for military dirigibles at Emden, Hamburg, and Kiel.

The Ministry of War took delivery last week of P11, a Parseval dirigible balloon of 8,000 cubic metres, 80 metres in length, 14 metres in diameter, and fitted with two engines of 200-h.p. each.

A new Zeppelin has been ordered of similar dimensions to Z III, and is to be delivered next year.

A Schutte-Lanz dirigible is also to be purchased.—W.

We are informed that a company has formed at Halberstadt for the construction of aeroplanes after an English patent. The machine on which Lieut. Altrichter and Herr Meyer came to an untimely end through side slipping during a vol plané, was a test biplane built by the company mentioned. There is no little astonishment in Germany at the order for twenty-eight aeroplanes the Italian Army has placed in England, and at the orders placed by Portugal. As the German papers report little or nothing of the progress of aviation in the United Kingdom, the general opinion over here is that England is painfully backward in matters aviatic.—B.

Ellery von Gorrissen, the young officer who left the army to take up flying, put up a new world's passenger record on his Ago-Otto biplane fitted with a 100-h.p. Argus motor. Taking up five passengers, the total weight of all six persons and fuel amounting to 430 kilos, von Gorrissen remained aloft for 23 minutes at 50 metres.—B.

ITALY.

Captain-Aviator Moizo, who was recently captured by the Arabs while flying over the Turkish lines in the vicinity of Tripoli, was released on November 13. He says that before his capture, on the morning of September 10th, he was compelled to descend owing to engine failure, but was able to rectify the fault and rise again before he was seen by the Arabs. But shortly afterwards his engine again gave trouble and this time he had to land in the Arab lines at Elmaia. He was treated with the greatest courtesy and was conveyed to the Turkish headquarters where several officers asked him if he could place his aeroplane in flying order. He did not do so, but says that it would have made no difference, as there were no pilots or mechanics with the Turks. He was then sent to the far interior, whence he has only just returned.

The new Italian dirigible P4 is now completed and is to be tried on the first suitable day. It has been constructed in the Government workshops at Bracciano. Naval Lieutenant Castruccio Castracane will be placed in command.—W.

It appears that Italy will place no more orders for aeroplanes in foreign countries in future. All the types the Army Commission recommended for purchase, such as Bristol, Blériot, Nieuport, Farman, etc., are to be constructed in Italy by Italian workmen from Italian material. This regulation will be extended to the motors as well. The firms desirous of retaining Italy's custom will, therefore, either have to erect factories in the kingdom or sell their licences to Italian firms.—B.

RUSSIA.

Captain Andreadi took delivery on November 10th at Villacoublay of a two-seated Morane Saulnier monoplane, which, during its tests, rose to a height of over 1,500 feet in five minutes with 250 kilos of weight aboard.—W.

GREECE.

The Astra hydro-biplane recently bought for the Greek Navy has now reached Athens and will be in use shortly. It is fitted with the bomb-dropping apparatus designed by Lieut. Scott, and with which he won the Aerocible-Michelin.—W.

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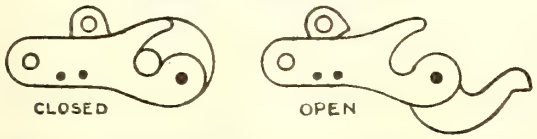
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BULGARIA.

It is reported in certain papers that the Bulgarian military aviator Lieut. Tarraxtchieff was killed while on a scouting expedition in the direction of Adrianople.

It was also reported some time ago that the Russian aviator Prince Popoff, who was said to have been killed a year or two ago through flying into the grand stand at St. Petersburg, departed on a scouting expedition and was seen to come down in the Turkish lines, and it is assumed that he died.

It is further reported on authority which cannot be called reliable that the Bulgarian military aviators have done a great deal of flying and have obtained valuable information, but nothing very definite is known up to the present.

The Russian aviator Efimoff—formerly chief pilot of one of the Russian military schools—is said to have made a successful flight over Adrianople, dropping leaflets calling on all Bulgarians to leave the city before the final assault was delivered. The story goes that his machine was hit several times by rifle bullets, and also by splinters of shrapnel, but that he returned in 20 minutes to Mustafa Pasha, a distance of 24 miles, the outward journey taking 40 minutes.

THE ARGENTINE.

The national subscription for the purchase of aeroplanes proceeds apace, and three Blériot monoplanes have been acquired. There must be added to these an Antoinette monoplane, a Nieuport monoplane, and a Henry Farman biplane, all presented by patriotic citizens.—W.

JAPAN.

On the 10th Mr. Dick Farman, who has not been much before the public as a pilot, was out at Buc testing a Maurice Farman biplane ordered by the Japanese Government.

Continental Notes.

Retirement from office even in a French Government is like a partial eclipse. Excitement dies and life becomes tasteless. In solemn desperation some, it appears, take to flying. On November 10th, at Villacoublay, M. Dujardin Beaumetz and M. Cruppi, ex-Ministers of State, made flights in a Nieuport monoplane piloted by Helen. They were impressed.

M. Garros, desiring to again possess the world's height record, is now frequently at Villacoublay testing Morane Saulnier monoplanes with a view to a further attempt on the record. He recently rose at Marseilles to a height of 4,500 metres in nineteen minutes on one of these machines.

M. Gibert has ordered an aeroplane from M. Vendome and intends shortly to attempt a very long cross-country journey. The skill and regularity with which he flew the Rep monoplane in the contests of last year is guarantee of his skill.

Austria, it appears from the report of the Imperial Aero Club, possesses 74 balloon pilots, 25 dirigible balloon pilots, and 85 pilot-aviators.

M. Kouzminski, who recently disturbed the sacred silences of the Forbidden City by flying over it on a 50-h.p. Gnome Blériot, is a nephew of the late Count Tolstoi. Between October 23rd and October 30th he made a series of excellent flights over the City of Tientsin.

Those whose life is made up in asking ceaseless questions and in the starting of "Silly Season" arguments have now settled on the aviator as their prey. M. Helen, the Nieuport pilot, has been asked whether he considers the aviator to be an athlete. He has answered: "Yes," to good effect, and his reasons occupy many lines of certain French papers. The obvious is never clear to the journalist.

When aviation was young and hearts were high the Compagnie Generale de Navigation Aerienne (holders in France of the Wright patents) engaged M. le Comte de Lambert, a Russian nobleman, and Mr. Wilbur Wright's first pupil, to act as technical engineer and pilot. But to-day, when the sky is grey, the company has found the prosecution of others for infringement of the Wright patents pay better, and have relinquished construction and the Comte de Lambert as well. They thanked him graciously for his services. But that was all. He felt aggrieved, and has sued them in the High Courts, with the result that they pay him £1,200 and costs.

Mr. Valentine in Ireland.

Since the last report of his flights in Ireland were published, Mr. James Valentine has made some flights at the Curragh of Kildare for the benefit of the troops stationed there. The General Officer Commanding gave the men special leave so that they could go and see the flying, but sad to say a comparatively small number of them took advantage of the opportunity. Of the several thousands to whom leave was granted, six in all paid for admission to the enclosures, though a few hundreds watched from outside. Mr. Valentine's flights were quite successful, and he has the honour of being the first man to fly over what will ultimately become one of our chief military aviation stations.

Mr. Hucks in the Midlands.

The absence of Mr. B. C. Hucks from Hendon recently is accounted for by the fact that he has been flying on recent Saturdays at Castle Bromwich, near Birmingham, where the Midland Aero Club is at last giving some signs of activity. The people in the Midlands seem to take very little interest in aviation, although there is plenty of money in the district, and they can well afford to do so. There have been very fair crowds at Castle Bromwich when Mr. Hucks has been flying, but so far no one seems to have expressed any desire to take an active part in aviation. Those who know how backward the Midlanders are in absorbing any new ideas will, of course, not be surprised at this, and it speaks well for the pluck and perseverence of the moving spirits in the Midland Aero Club that they have been able to keep that body in existence.

Mr. Hucks was flying there again last Saturday, and has arranged to fly at Castle Bromwich every Saturday.

Mr. Percival on Salisbury Plain.

Mr. Percival has recently been on Salisbury Plain flying the Dunne aeroplanes. On Friday he flew on the biplane from Lark Hill to the Central Flying School reaching a height of 1,500 ft. He made a demonstration flight of several circuits, flying a considerable distance with both hands off the controls, and then flew back to Lark Hill. On Saturday he made a flight of half an hour on the biplane.

A Wireless Deperdussin.

One gathers that there is likely to be a very novel and interesting machine turned out from the works of the British Deperdussin Co. Beyond the fact that it is a hydro-aeroplane, and that there are no external wires of any kind, one is not yet at liberty to describe it.



Photograph by Mr. F. N. Birkett, Percy Road, Shepherd's Bush, W.

Night Flying at Hendon :—No. 1 Pylon, and four illuminated machines, the 70-h.p. Farman, the 50-h.p. Grahame-White, the 45-h.p. Caudron, and the 80-h.p. Farman.

The First Aeronautical Society Meeting.

It would not be a bad idea if in future the Aeronautical Society were to announce in the preliminary notices of its meetings whether they were to be meetings for mathematicians or merely for ordinary people who make aeroplanes fly. To the former, no doubt, Mr. A. E. Berriman's lecture on the 13th, at which General Sir Horace Smith-Dorrien presided, would have been of most absorbing interest, for Mr. Berriman is generally recognised as one of the leading scientific exponents of flight in this country. Unfortunately, the matter of his discourse was considerably over the heads of all but a few of the sailors, soldiers, constructors, and others to whom he addressed himself.

Prior to starting the lecture proper a number of lantern slides were shown of machines which took part in the Military Aeroplane Competition. The majority of these slides were made from photographs taken by The Aeroplane, and as the Aeronautical Society unfortunately omitted to notify this uninteresting fact, the writer has much pleasure in doing so on their behalf.

Afterwards Mr. Berriman showed a number of exceedingly interesting figures relating to the machines, together with a troupe of performing equations and curves, and the writer freely admits that it was his own abysmal ignorance which prevented him from appreciating them.

However, if a recognised mathematician tells one that by multiplying the length of entering edge of the main planes in metres by the projected area of the wire strainers in square millimetres plus the sine of the dihedral angle, and dividing by the volume of the cylinders in cubic centimetres one gets a figure which can be equated with the efficiency of the machine in kilogrammemetre seconds after making due allowance for the value of the co-efficient of efficiency "k" and a mysterious "x" which indicates specific gravity hours, how is the non-mathematical person to contradict him? At any rate, analogous exhibitions of colossal learning did not exactly provide a basis for discussion in a Society which primarily exists because it takes an interest in the construction and flying of aeroplanes.

Having disposed of his figures, Mr. Berriman touched on the various points brought forward in the Judges' Report, these being the points which were dealt with in in The Aeroplane last week. In referring to the Bristol machine, he added that it carried a load of almost 9 lbs. per square foot, and that when flying the tail was so high that at every movement it appeared to him to be about to make a descent. The next nearest loading was about 6 lbs. to the square foot. In referring to the Avro, he pointed out that the Green engine consumed about half-a-pint of petrol per horse-power, which was exceedingly little. He also remarked that practically all the machines in the Competition carried between 24 lbs. and 28 lbs. weight per horse-power. In reference to the Blériot, he said that the tandems were originally built with 50-h.p. engines. Here the writer ventures to disagree with him, for so far as he can gather, all the tandem Blériots have been 70's, although some of the old side-by-side types were 50's.

Mr. Mervyn O'Gorman said that he disagreed in part with Mr. Berriman, because he considered negligible many things which Mr. Berriman considered of importance. It was possible to expend the whole of the horse-power of a machine in flying at its slowest speed, simply by flying very cabré (i.e., tail down), the extreme case being when the machine was standing still horizontally, and standing on its propeller. Also, it was quite possible that the best horizontal speed might not use up all the horse-power, there being an excess of horse-power for climbing purposes. The figures as to the weight carried were interesting, for he had found that in a motor car with nice comfortable acceleration it was carrying about 110 lbs. per horse-power, and a scientist had worked out that a well-known domestic animal—the flea to wit—carried about 1 cwt. per horse-power. Mr. O'Gorman also made the statement which seems subject for a nice argument, that it is possible to design a wing with a certain camber in which warping increases the camber, increases the lift, and yet diminishes head resistance.

Mr. A. R. Low, of Vickers, Ltd., showed quite lucidly the French method of calculating the theoretical value of machines in which the French use as their factors: horse-power of the engine; the weight of the power plant as a whole, including petrol and oil; what is called the glider weight of the machine, which is the weight minus the power plant; and what is called the useful weight, which is that of the pilot, passenger, or passengers and armament. Mr. Low intends to publish in the Aeronautical Society's Journal, at an early date, a series of common-sense formulæ produced from these factors.

General Henderson, who naturally, as one of the judges in the trials, could not comment in any way on the results, merely said that the machines in the trials showed many improvements in detail, and that the machines were judged on results and not on intentions. He regarded the chasing of "x" rather as a recreation.

General Stone said that there was one factor in aviation which did not seem to have received full attention, namely, the human factor. For instance, the Cody machine of three years ago differed almost infinitesimally from the Cody machine of to-day, but the difference between the Cody of three years ago and the Cody of to-day was phenomenal. People seem to have been waiting for the perfect machine, but had not thought of training the imperfect man.

Lieut. Parke, R.N., said that it would be useful if there was a test of the ability of machines to make involuntary landings when flying across country. He was of the opinion that a bad gliding angle helped in doing so. If a pilot's engine stopped he would naturally come down on the land nearest to him which appeared fit for a landing place, and so would come down steeper than his best gliding angle. He might then find himself over a small piece of good ground, and owing to the good gliding angle of his machine he might not be able to land inside it when he flattened out for the purpose. The difficulty of most machines with an extremely good gliding angle was that one could not get them on to the ground, and that some method of destroying the gliding angle at will was advisable. One might suggest here the old Farman fliers' trick of waggling the ailerons rapidly in order to check the way on the machine. Possibly this might not be safe with a warp, but it certainly acts with ordinary ailerons.

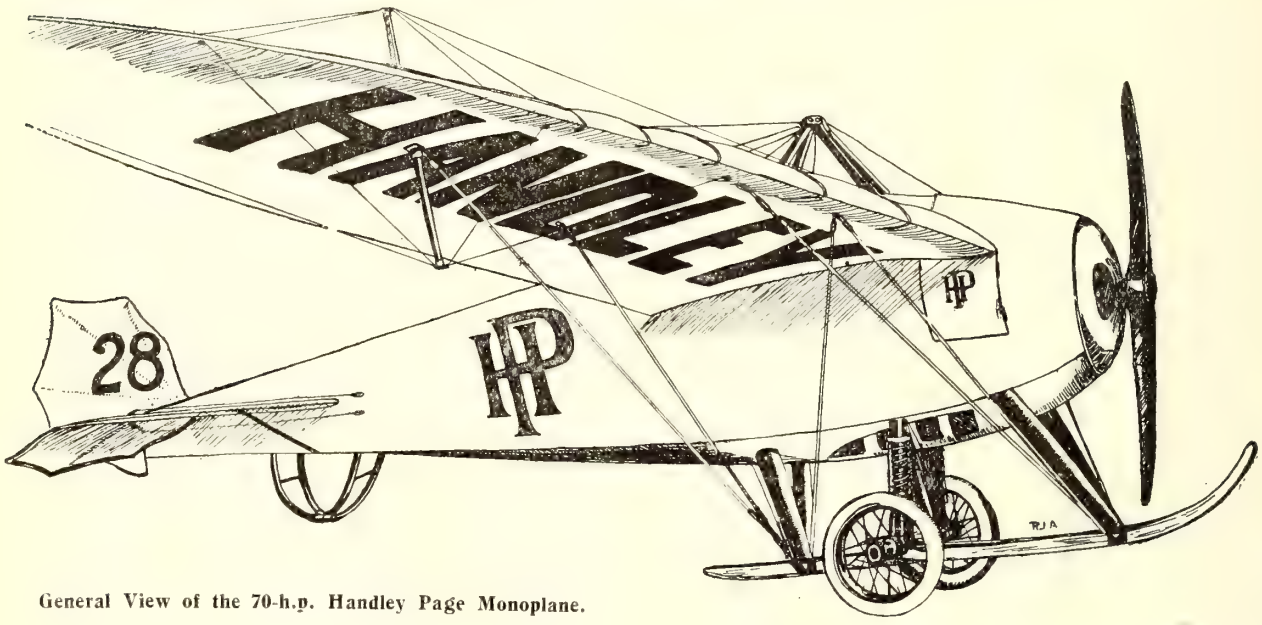
Mr. Roe suggested the possibility of a reversing propeller.

General Smith-Dorrien, in winding up the discussion, said he did not pretend to understand the figures shown, but he was anxious to learn more about aviation. Everyone in his position should take an interest in the air service. When he talked of flying he experienced a feeling of meanness, for he felt that he was egging others on to do what he was afraid to do himself. In time of war one ordered men into the fighting line, but here we were in times of peace asking men to take great risks as part of their every-day duty. The conquest of the air was very likely to revolutionise warfare, and a nation without a staff of trained pilots was at a great disadvantage. He was much impressed by the fact that the trials went on in spite of the most poisonous summer he remembered, and by the fact that no accident happened owing to the trials themselves. He felt personal pleasure in Mr. Cody's victory, for Mr. Cody had been intimately connected with the Aldershot troops, and when Mr. Cody left the Government Service, he (General Smith-Dorrien) was able to give him ground upon which to practice and develop the improvement of aircraft. He pointed out that we still had to learn what war means when opposing aircraft are armed. We also had to see what effect air scouts would have on cavalry, for they might allow cavalry to take their place alongside the other troops instead of operating far in advance, but this would depend on what aeroplanes could do to stop one another. He thought that aeroplanes would not be very vulnerable to bullets from below.

We must have trained observers, and he suggested that the observer should be an officer of the General Staff. Aeroplanes would be very useful for despatch work, especially when it was necessary to get troops in at the right moment. There was considerable difficulty in obtaining proper aeroplane practice in conjunction with artillery, for on Salisbury Plain they were limited to artillery practice between 9 a.m. and 3 p.m., when in the summer the weather was worst for flying, but they hoped to get leave from the local authorities to start firing at dawn on six days a month. He was pleased to see that the Central School was bringing the Army more into touch with the Navy, which was very desirable. He hoped the Air Service would remain one corps. He thought that the Aeronautical Society deserved thanks for their effort to make England independent of foreign machines.

General Ruck, the Chairman of the Society, in returning thanks to General Smith-Dorrien, said that his presence was a proof of the scientific interest the Army took in the progress of aviation, and it was important to the nation at large that distinguished general officers should be in touch with aviation.

The Handley Page Monoplane.



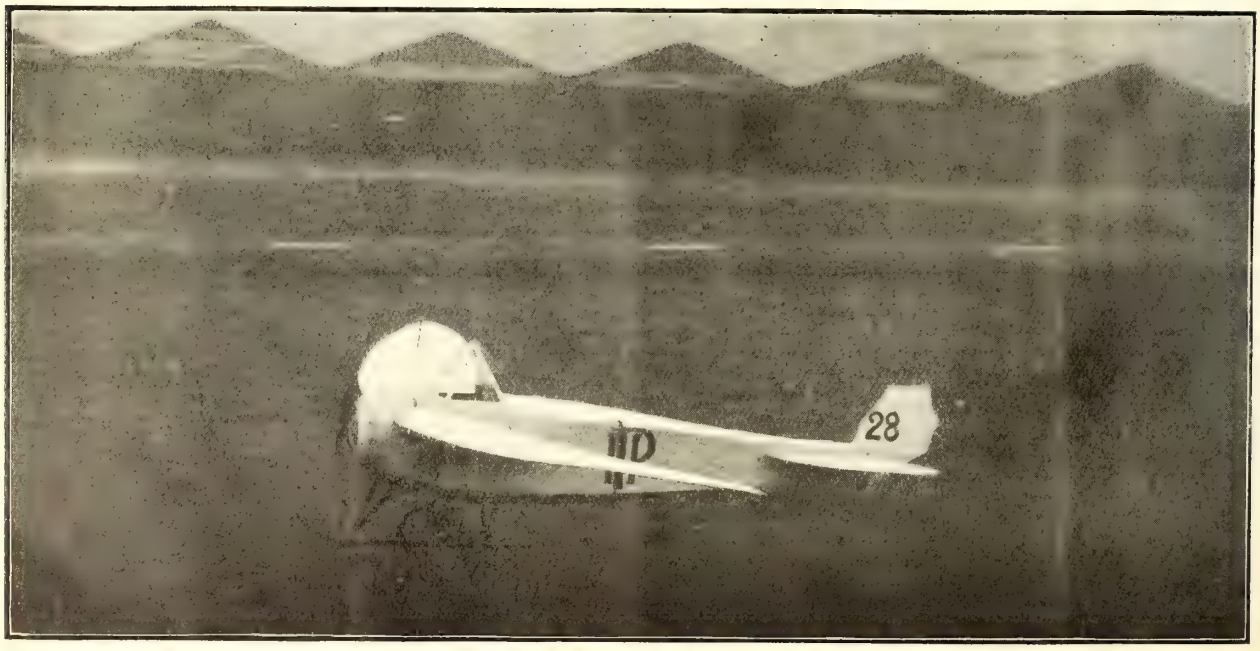
General View of the 70-h.p. Handley Page Monoplane.

Since the début of the Handley Page monoplane at Hendon much has been written of the automatic stability of the machine. Little, however, has been told of its construction, though this feature is quite as worthy of comment. Seldom does one see such solid stuff as is used for wing cables on the machine. Very few landing gears are as hefty. Not often is better finish put into an aeroplane. The whole thing looks a sound job.

The crescent wing with its reverse camber at the tips is well known. Its construction is not. The main spars are 10 inches deep at the wing roots, and are only 10 feet 6 inches in length. The wing stays are Swedish steel cables. Each cable is formed of eight smaller cables, each of which is made up of about 17 strands. The breaking strain under actual test of these cables was 11,000 lbs. The upper stay wires are tested to 2,600 lbs. breaking strain. There is not much doubt about the Handley Page wing staying.

There is a kingpost about two-thirds of the way along the wing to stiffen up the tip. The wings are warped by a very solid toothed wheel and chain system located behind one of the V's of the undercarriage, as shown in the sketch. This warping gear is hardly ever used when flying. It is fitted to straighten the machine in landing. The stability of the planes produces a rolling motion in the air, and if the wing were halfway through a roll when it touched earth, it might not get the chance to finish. In all other cases the warp is not required.

The tail of the machine is a non-lifting plane. It is almost a semicircle, and has two elevators hinged to it. The area



The 70-h.p. Handley Page Monoplane just landing at Hendon on Sunday last.

of tail and elevators together is, roughly, 40 square feet, and that of the rudder 14 square feet.

The fuselage is very nearly a true streamline. The 70-h.p. Gnome works inside a hemispherical housing, the exhaust being carried away through gill-like slits beneath the pilot's feet. As far as one can gather, the Gnome is quite happy in there, and no over-heating has been experienced.

The pilot and passenger sit side by side in comfortable seats. The interior of the cockpit is nicely finished off with Robbialac enamel and upholstered in leather round the opening in the deck. The cleanliness of everything was most noticeable, as the Gnome was not allowed to sling castor oil about.

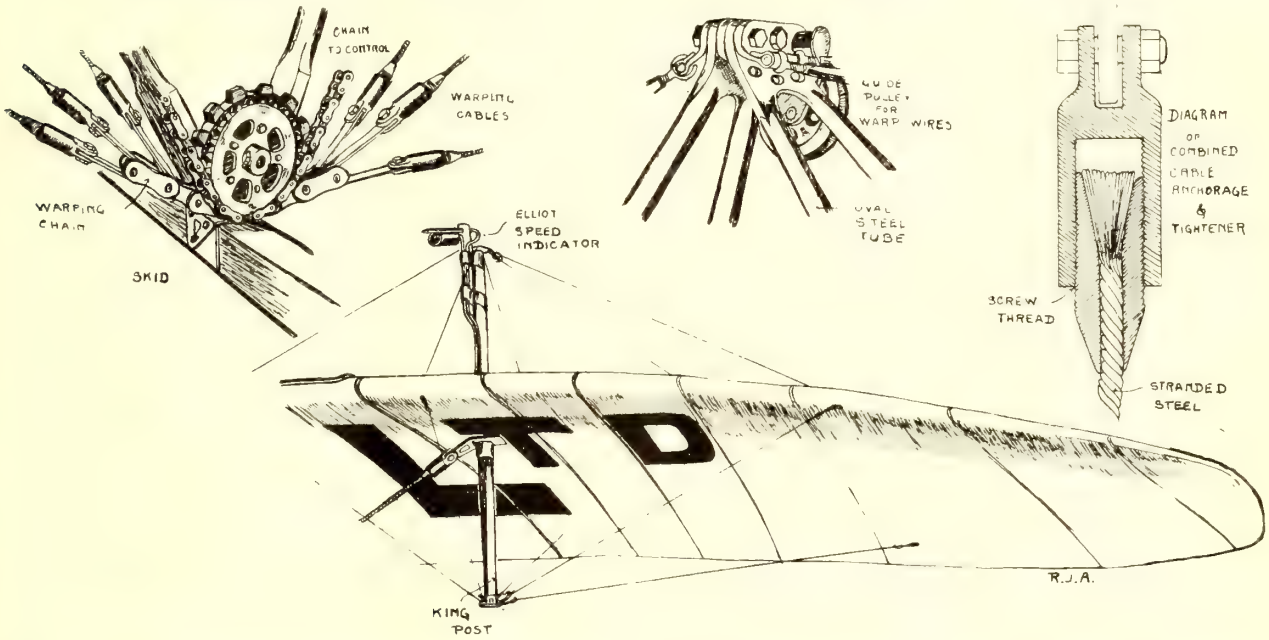
The fuselage runs off behind the cock-pit to a vertical edge forming the rudder post. Round the engine the covering is metal. The rest of the body is covered with fabric, given two coats of dope and finished off with Robbialac.

The undercarriage consists of a very strong central skid, well turned up in front, and connected to the body by three V's of nicely streamlined struts. The axle is hinged at the join of the middle V and the skid by universal joints. Spiral compression springs take the load, and radius rods to the foreward V keep the wheels in track. The joints in the undercarriage are so ingeniously designed that it is practically impossible for one to give, and it seems that nothing but total annihilation would shift the landing gear.

The cabane is formed of two triangles, one made up of the port struts, and the other of the starboard. These triangles are each hinged on to the upper fuselage longerons and united at the top by two $\frac{5}{16}$-inch bolts. When these bolts are withdrawn, the cabane can be opened and the wing guys thereby slackened. The wings can then be taken out of their sockets and folded alongside the fuselage for transport; this is probably the quickest dismantling and assembling arrangement yet devised.

The tail is protected by a malacca cane skid, very much after the style of the Blériot skid of a short time ago.

According to the Elliott air-speed indicator, the machine does 58 m.p.h., but as the engine was not pulling well, and as the propeller was rather heavy for the Gnome, it is hoped to get another 10 m.p.h. out of her.—R. J. ASHFIELD.



Details of the Handley Page Monoplane.—The Warping Gear. The Overhead Pylon, or Cabane. Section of the Wing-Stay Adjusters. General Arrangement of the Wing Tip.

A Tempting Proposition.

A very interesting prospectus is to hand from the Brighton-Shoreham Aerodrome, Ltd., setting forth the claims of the aerodrome as a permanent location and as a landing place for aviators. The aerodrome offers large sheds at low rents, closeness to a railway station, reasonable proximity to London, and exceptional facilities for hydro-aeroplanes, together with an enormous extent of flying area round and about the aerodrome. It is pointed out that accommodation can be obtained locally at reasonable prices, and that the Exchange Telegraph Co. have an office on the ground through which proprietors of machines can circulate throughout the country information of good flights done on those machines. To those desirous of leasing a shed there permanently, special terms are made, under which, in three years, the tenant owns his own shed and merely has to pay a small rent for the use of the aerodrome. It must be remembered that in the Brighton district the weather is almost uniformly fine through the winter and that a number of well-to-do visitors live there during December and January, so that there are excellent opportunities of doing good trade in passenger flights and tuition in the winter.

Mr. Ferguson Flying Again.

Those who are interested in aviation will be glad to hear that Mr. Harry Ferguson is once more taking up flying. The motor business which was formerly known as the May Street Garage has been taken over by Mr. Ferguson as Harry Ferguson, Limited, and is doing exceedingly well; so Mr. Ferguson now intends to do what he can to assist the cause of aviation in the North. Not very long ago he had his old machine out again at his home near Dromore, co. Down, and then made a number of flights across Lough Achery with considerable success. His partner in the motor business, Mr. Lloyd Williams, is also taking up flying, and has taken the machine to Magilligan Strand, co. Derry, where further experiments will be tried, and it is hoped that before long the growing interest in aviation in the North of Ireland will bring them assistance from among other Ulster sportsmen.

An Historic Machine in Ireland.

It is interesting to note that the ancient Farman biplane belonging to Mr. Cockburn, the first ever built by Mr. Farman himself, and afterwards flown by Mr. Cockburn at the first Reims meeting in 1909, has been acquired by M. G. Loder and Co., who announced some time ago their intention of opening an Irish aviation school near Baldoyle, co. Dublin, and have since said that their school is to be among the mountains at Blessington. It is to be hoped that other machines will also be acquired for school use, as this machine is of the very oldest type and is by no means safe for anything except rolling, and perhaps a little hopping. One gathers that this firm recently organised an exhibition of flying at Wexford, and that a Farman type machine was used for the purpose. It was flown by Mr. Payze, who took his certificate about a month ago at the Bristol School at Brooklands. It is reported that the termination of his flight was in the water of Wexford Harbour.

The Week-End at Hendon.

Once more the wise people who went to Hendon on Saturday and Sunday had a magnificent exhibition of flying. Saturday was what is commonly known as a "dirty" day, with a raw wet mist, but it was capital flying weather. Most of the usual fliers were up, but novelty was provided by a new-comer, Mr. Manton, an ex-pupil of the Grahame-White School, who was suddenly developed into a really fine pilot, and was doing fine banked turns on the Grahame-White School biplane.

Mrs. Stocks made an excellent flight on the old Gordon-Bennett Blériot, which she handles very nicely in the air, and lands carefully, though she would do well to practise landing with the engine shut off, for she seems to tend to glide at too flat an angle. Anyhow, this ex-racer is scarcely a lady's machine in any case.

Mr. Noel, on the 80-h.p. Farman, disappeared in the heavy dark clouds, and when he came down he told me that at 3,000 feet he had come through into bright sunlight, so he stayed there for a sun bath, apparently flying over a white sea. He was the only man in London who saw the sun that day.

Mr. Pickles did some beautiful spiral glides on the 45-h.p. Caudron biplane, which he handles in a masterly fashion, and he took up several passengers, one being a lady. Mr. Harold Blackburn was out on one of the Blackburn school monoplanes, which seemed to be flying quite well. By-the-way, Blackburn the constructor is no relation to Blackburn the pilot, who will be remembered as the builder of the "Colossoplane" at Brooklands, and lately as Grahame-White pilot.

M. Verrier had out a brand new British-built Maurice Farman, which seems about the best machine of its type yet produced. The workmanship is beautiful; the details have been carefully attended to, such, for instance, as guard-wiring every wire which could possibly catch the propeller; and the balance of the machine is so perfect that it literally flies itself. M. Verrier took up Mr. Bernard Isaac, who, as manager of Mr. Grahame-White's London office, has made such a success of the booming of Hendon, and proceeded to do his usual switchbacks and banks, after whom he took up Mr. Desmond Arthur, the well-known Irish pilot, and several others.

Everyone was delighted, and very much surprised, to see Mr. Richard Gates going about his business much as usual, but for a slight limp and looking slightly pale. He really ought to have had a week in bed, and then a month's holiday, but there is no holding him when there is business to be done. However, we would all rather have him at Hendon than away, even on a holiday.

Sunday's Flying.

Sunday was even a better day, and there was quite a big crowd there in the afternoon. These Sunday crowds will be a lot bigger as soon as people realise what a fine show of flying can be seen during the winter. In the morning Mr. Maurice Farman came up with Mr. Holt Thomas and made his first flight on a British-built machine of his own design. He took it over to Harrow and back, and for several circuits of the aerodrome, expressing his satisfaction with the way it flew. Also he took up Mrs. Holt Thomas and another lady passenger.

The new 70-h.p. Handley Page was also out for several trips before lunch. Mr. Page has struck a brilliant idea. In order to convince people that his automatic stability system is right he has offered to let any pilot of experience fly the machine and test it, and as a natural result he has a lengthy "waiting list" of pilots all anxious to try the machine. The drawback is that one never knows who is flying the machine at any given moment, especially as the sportsman who operates the megaphone has become convinced that a certain naval officer who has flown the machine on occasion—among a dozen or so different makes—now flies the Handley Page at all times and seasons, so that one is apt to receive the impression that the aforesaid N.O. is flying the machine when he is really on another part of the map. As a matter of fact, I was told in Paris that he had broken up the 50-h.p. Handley Page, whereas he was peacefully and dutifully flying a biplane 70 miles away when the accident happened. So do we suffer for the sins of others. However, on Sunday the machine made about 15 different flights, equal to about 120 miles flying, most of them with passengers. Quite a tidy day's work.

Mr. Noel on the 80-h.p. Farman, after taking my better half to Harrow and back at over 2,000 feet, took up Miss Morritt and then a dozen or more other passengers, who were positively waiting in a queue for a chance of a flight. M. Verrier treated me to a few circuits round Kingsbury and Hendon, and then gave me my first experience of one of his long, slow spiral descents with the engine just ticking round enough to move the propeller. It is quite a delightful sensation, the most astonishing thing about it being the slowness of the descent, which must be yards per second slower than any parachute. For quite considerable distances during the flight M. Verrier was flying without touching the control levers, the machine only showing a slight tendency to descend when left to herself, and the merest touch bringing her up level again. Laterally she needed no handling at all, except when banking at the turns. Afterwards, M. Verrier took up eight or ten other passengers, including Mr. Mansfield, Secretary of the Aerodrome.

Mrs. Stocks flew very well on the 50-h.p. Blériot, her landing being markedly good. Mr. Desoutter also took the same machine out and flew with his usual neatness, as usual doing turns with his hands held above his head, to show how easily the machine controls—with the cloche held between the pilot's knees.

Mr. Hamel, just back from the North, brought out Mr. Weir's Blériot, and after a few of his typical banked turns flew off to Brooklands to tea, arriving there in 19 minutes, and coming back in the deep dusk in 21 minutes, showing how little wind there was.



M. Louis Noel and one of his passengers on the 80-h.p. Henry Farman at Hendon on Sunday.

Mr. Pickles was doing fine work on the 45-h.p. Caudron, going up high and coming down in the most impressive spiral dives. Mr. Manton was again flying in quite professional style on the Grahame-White biplane, and it looks as if the shrewd Mr. Gates had discovered a new "star turn," if he is given a chance on one of the new machines now coming through. Mr. Gates himself was again to the fore, looking better than the previous day. There was a general feeling that everyone was well pleased with the exhibition of flying, and everyone seemed happy, except, perhaps, the excellent Lieut. Porte, R.N., who was most anxious to try a handsome new British Deperdussin with the latest 75-h.p. Anzani engine, and found that the propeller, made by someone else, was out of balance, so that it was not safe to fly the machine. This new Anzani looks really well, and if it is as efficient for its size as the 35 h.p. and the 45 h.p., it ought to do good trade in this country, and it would not be bad business if the G. A. C. people arranged for a British firm to take up the manufacture of these engines.

Taking it all round, it would be hard to find a more interesting place for a winter week-end visit than Hendon as it now is. One of the convincing proofs of this is the number of officers of both wings of the Royal Flying Corps who habitually spend a "'busman's holiday" at the aerodrome, knowing that they are sure to see whatever is new in the way of machines and motors there.—C. G. G.

Catering at Hendon.

Those who want to see flying at its best cannot do better than go to the London Aerodrome on any moderately fine day during the winter. In the morning ordinary school work and tuning of machines is in full blast and provides excellent entertainment. For lunch and tea one can go to Mr. Reeves' restaurant just outside the gate of the aerodrome, and the management have arranged for visitors to have return tickets which will re-admit them after their meals. Mr. Reeves provides excellent hot or cold lunches at very low prices, the food itself is always of the best quality, it is nicely served, and really well cooked, so that anyone can rely on being properly fed if they decide to spend the daylight portion of our short winter days at Hendon. And it should be remembered that the exhibition week-end flying during the winter is frequently much better than in the summer.

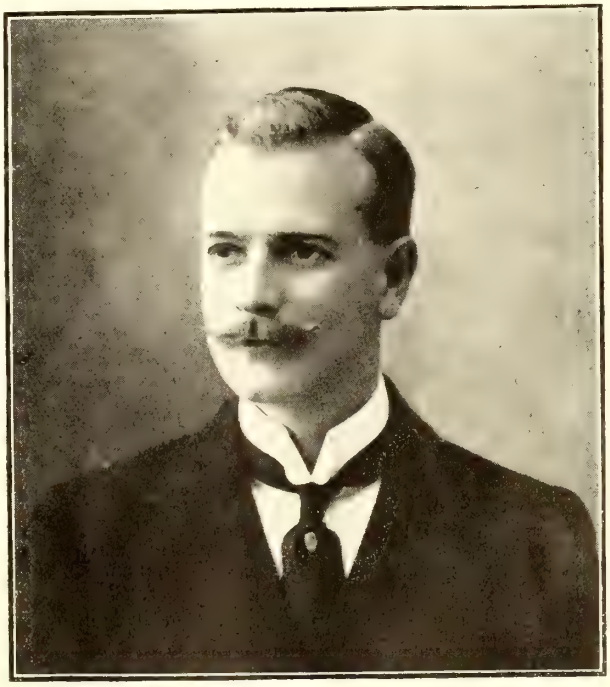
The Aeroplane and the Halls.

The first music-hall artist to take his pilot's certificate is Mr. Tom Grave, formerly a well-known cycle racing man, and now better known as "Darracq," whose "whirling the wheel" act in a minature motor car is one of the most sensational things on the music-hall stage. Mr. "Darracq" is shortly starting on a fresh tour of the "halls," and intends to do his best to stimulate public interest in aviation in the course of his performance. He has acquired a monoplane which he will take with him on tour, and will exhibit in those towns where aeroplanes are not well known. The working of the machine will be explained to the audience in the simplest manner possible, and an excellent cinematograph film taken of Mr. "Darracq" himself flying on a Bristol at Brooklands will be shown. The idea is an excellent one, and it is certain that Mr. "Darracq's" enterprise will do much to increase popular interest in aviation.

Mr. Hamel in the North.

Mr. Gustav Hamel has recently been doing a considerable amount of flying in the provinces on his 50-h.p. Gnome Blériot, often under exceedingly difficult and dangerous conditions. Recently when flying at Burnley, in Lancashire, he had an adventure from which he was very lucky to escape with his life. The ground there is very small, and is situated in a valley down which the wind was blowing strongly. At the end of the ground was a high wall, and almost immediately above it some high telegraph poles. Unless the machine rose exceedingly well, practically the only way out of the ground was over the wall and under the wires, which left a couple of feet to spare below the wheels, and about the same over the cabane. Mr. Hamel, rather than disappoint the crowd, decided to risk it, and was making a good course for the gap when, just as he topped the wall the upward wind from the far side of the wall caught him and raised the machine so that he flew straight into the wires. There was a terrific bang, and then he found himself flying on quite comfortably. Feeling that the machine answered her controls all right, he continued to fly, and went up to between 2,000 and 3,000 ft. coming down after a flight of about a quarter of an hour. On descending it was found that one edge of the propeller was somewhat chipped by the wires, and that one of the tubes of the cabane was slightly bent. This shows what it is possible for a good flier on a good machine to do, but the average aviator is not recommended to make a practice of flying through telegraph wires when any other course is open to him. One can only assume that the propeller must just have glanced off a wire which was actually broken by the big bolts in the boss of the propeller, for undoubtedly if it had struck the wire at anything like an angle the propeller would certainly have broken, and the machine would have come down "all anyhow" a very little farther on. If the machine had been blown a little higher so that the wires had caught the chassis instead of the end of the fuselage, it would certainly have been tripped up and turned a somersault. One thing, therefore, is clear, namely, that if it is absolutely necessary to hit telegraph wires it is just as well to charge them perfectly straight with the engine instead of risking catching them in the chassis. As the result of this feat Mr. Hamel has received the following official letter—certainly the first of its kind on record:—"I have to inform you that on Saturday last, the 9th inst., Mr. Gustav Hamel, who was giving exhibition flights in the neighbourhood of Burnley, came into contact with the telegraphs of His Majesty's Postmaster-General, breaking nine wires. The necessary repairs are being put in hand, and an account in respect of same will be rendered in due course."

Mr. Hamel has recently cultivated a new style of landing, which should be carefully studied by all those who intend to do any cross-country flying on fast monoplanes. Instead of coming down in the ordinary way and running along the ground till the machine stops, he flattens out a considerable height above the ground, then deliberately lets the machine pancake for several feet, and at the last moment drops the tail so that the tail skid and wheels touch at almost exactly the same moment with the result that the machine does not run at all, but practically stays exactly where it lands. As a method of landing in small fields with walls or hedges round them, this is excellent, and though one is rather apt to damage machines in practising, once the trick is acquired it will save many machines in flying across country, and for military purposes it is certainly better to break machines while experimenting at the aerodrome than elsewhere. About the only other pilot who had ever cultivated this trick to perfection was Capt. Dickson on the very old type Farman.



Dr. Edmund Stodart, of the Middlesex Hospital, the first Australian doctor to fly. He recently took his certificate on a Caudron.

Mathematics in Aviation.

Various remarks have been made to me since the publication of my review of Professor Bryan's book on "Stability in Aviation," as to the uselessness of such investigations as compared with practical experiment. It appears to be a stock idea in many minds that mathematics in aviation invariably leads to waste of time and money, and it is my purpose in this article to show wherein is the error of this assumption.

Firstly, it would seem almost a truism to state that it is utterly foolish for a person to lay an objection against a system when that person is not fully acquainted with the system itself; and it must be noted that comparatively few of those who are interested in aviation have a real acquaintance with the principles or capabilities of mathematics. Mathematics is regarded by those accustomed to its use, not as a god to be worshipped, but as a most useful tool to be used. This analogy may be useful in considering the subject.

For example, if the manager of a great machine shop were to take over it a mechanical ignoramus, he would very likely be treated to the remark that it must be more difficult to use the complicated machine tools which he shows than to do the work itself with simpler tools. Now the greater part of my readers will be more or less acquainted with machine tools, and will realise the utter futility of this suggestion. Nevertheless, it is the very argument that is constantly employed against advanced mathematics. Those who know nothing of the subject are continually pointing out that it is much simpler to arrive at results by guess work or experiment than to work them out by complicated formulæ. They do not appear to understand that the complicated formula, like the machine tool, although intricate in its conception, may yet be perfectly simple in its use when its main principles have been grasped, and, further, that the more complicated as a rule is the machine or formula, the greater facility has it of turning out a large quantity of work. This seems fairly conclusively to answer the objection as to the mathematical *method*.

Another strenuous objection which one has to face is a criticism and doubt of *results*, and in this connection it is necessary to examine the main principles of mathematics. Mathematics is known to its friends as the perfection of logic. Mathematical investigation consists really of a series of propositions of this form: if a certain thing has certain properties, and if those properties involve certain other properties, then that thing will possess these latter properties. The truth of the final conclusion of each particular proposition depends upon two things. Firstly, the general law that the possession of certain properties involves a possession of certain other properties, and secondly the particular statement that a certain thing possesses certain properties. Now a fallacy in mathematical reasoning may be caused by a false assumption on either of these two points. In the realm of pure mathematics we know that a fallacy will be caused entirely by a mistake in the particular assumption, for the simple reason that the general laws of mathematics are, and must be, absolutely true—provided, that is, that it is granted that two and two make four. On the other hand, we do not know for certain that the so-called laws of nature, or physical laws, are unalterably true. In fact, the assumptions which are known to us as physical laws are continually being altered as the state of science advances. And to a certain extent mathematics, as applied to physical properties—under which heading, of course, will come the mathematics of aviation—depends upon these physical laws. For example, the mathematical calculation of the lift of a plane takes the following form: By experiment we find that, keeping in each case the other properties of a lifting plane constant, doubling the area will double the lift, doubling the angle of incidence will double the lift (N.B., this is known to be an approximation), doubling the speed will quadruple the lift, and we know that a plane of a certain area running at a certain angle and velocity will give us a certain lift, which is defined by the "co-efficient" of the plane. So far we are observing physical law; but, having these particulars, it is possible for us to find out by pure calculation the lift of any plane whatsoever, at any speed or angle within the limits of truth of the physical laws involved; and this latter part of the calculation is a matter of pure mathematics, and must, therefore, be true.

We can, therefore, now see wherein is the liability to error in mathematical investigation of flying. It is not in the mathematical reasoning itself, but in the first assumptions from which the reasoning is done, for in order to carry through a sound train of reasoning it is necessary to note every conceivable circumstance that can have any bearing on the subject, and since the subject itself is a new one, we do not know entirely what circumstances do have bearing upon it. Therefore, it is difficult to reason entirely soundly by pure mathematics. But here again the mathematician has a complete answer to his detractors.

His method is as follows: He will make every experiment he possibly can on the subject, altering one property at a time of the subject for experiment, and he will combine all his results so as to produce what is known as an "empirical formula," a formula which is obtained primarily from the actual work of nature, and whose form only is dictated by pure mathematics. The classic example of such a formula is the law of expansion and pressure of gas.

It was perfectly obvious from the earliest experiments that if a certain amount of gas of any kind were confined in a space, then a reduction of that space caused an increase of the pressure of the gas, and the question arose as to the relation between the decrease of space and the increase of pressure. Many attempts were made with more or less success to find this relation, and pure mathematics showed that if the gas behaved as a perfect gas should, then the pressure and the volume when multiplied together should give a constant result. That is, that if, for example, the space were halved, then the pressure would be doubled. But it was fully realised that since no gas known *does* behave exactly as a perfect gas should, it might be necessary to make an alteration in the formula to account for this. Forthwith experiments were made with various gases, the results tabulated and the empirical law formulated: that the constant is the product not of the volume and the pressure, but of the volume and a certain power of the pressure, which power varies with the particular case under consideration.

In the same way the question of the lift of planes should vary, on pure theory, exactly with the sine of the angle of incidence, but it was realised that, owing to eddies and various other effects, this might not hold at large angles, and experiments made have resulted in various empirical formulæ which allow for these eddies, etc., although it still remains that, for practical purposes, the original formula is sufficiently correct, at the small angles which are used in practice.

In the same way calculations on stability may be made entirely from certain natural laws, viz., principles of motion and of gravity, which are universally accepted as equally true with mathematical laws simply because, in the whole course of investigations of nature, every succeeding experiment has as yet confirmed them entirely; but, when utilising these laws, allowance must be made for every circumstance which can possibly bear on the subject, and it is in these allowances that so many have failed. But—and it is here that the non-mathematical mind goes entirely astray—the fact that many have failed through insufficient allowance for outside circumstances has no bearing whatsoever on the correctness of the method if properly applied.

Moreover, it must be remembered that an experiment, by itself, is almost useless; one man may have experimented with plane cambers and have found, as Phillips found, that a particular camber gave the best results. Now so long as the conditions are identical, he may be sure that this camber is the best, but it is obvious that the slightest alteration of conditions should involve a corresponding alteration of the camber. Thus, although he may have discovered the best camber, his train of reasoning as to why it is the best may be entirely wrong, just as, for example, it is now generally believed that while the Phillips' camber probably *is* the best, Horatio Phillips' own reasons for assuming it to be the best were probably erroneous.

If now it were desired to have a camber for use under rather different conditions, a new camber would be designed by considering, firstly, the reasons why the original camber was the best, and, secondly, the modifications dictated by these reasons. It is obvious that if the reasons for adopting the camber in the original were wrong, then in modifying the camber to suit the altered conditions, the modifications will probably be in the wrong direction. So that we see that in order to utilise the results of an experiment it is necessary also to know the real essence of the results produced, and this knowledge will only be provided by mathematical consideration of the original conditions.

Our final conclusions, therefore, will be that, whereas experiment is necessary to find what are known as the "constants" of a particular relation, mathematical investigation is equally necessary to enable us to argue from a result obtained under given conditions to the obtaining of the same result under different conditions, and that, therefore, the more mathematics is brought to bear on aviation the better.—P. K. Turner.

The Week's Work.

MONDAY, November 11th, TUESDAY, November 12th, WEDNESDAY, November 13th.

Everywhere.—No flying: Rain, wind, fog, and general misery.

THURSDAY, November 14th.

R.F.C. (Central Flying School.)—Very strong wind early, which abated to almost calm by about 3 o'clock. All so glad to see calmer weather that flying was soon in progress, five machines being in air at same time. On Avro 406, Lieut. Hubbard 20 mins., Air Mechanic Higginbottom 8 mins. On Avro 404, Capt. Fulton, R.F.A., 5 mins.; Lieut. Waldron 15 mins. On Maurice-Farman 403, Lieut. Longmore, R.N., with Major Ashmore, 5 mins; Lieut. Abercromby 9 mins.; Lieut. Cholmondeley, with Lieut. Williams-Freeman, 24 mins. On Short tractor 413, Major Gerrard, R.M.L.I., 10 mins. alone, then with Lieut. Randall, R.N., 18 mins.; Capt. Risk 14 mins. On Short biplane 401, Lieut. Lushington, R.M.A., 9 and 8 mins.; Lieut. Pepper 8 mins; Major Gerrard, with Leading Seaman Prickett, 7 mins.

Liverpool (Waterloo).—Mr. Melly had out school Anzani, after complete overhaul of engine and running gear and fitting an improved carburetter, and found machine in perfect working order. Then took out "Y"-engined machine and did a short turn, but, finding the wind too strong, brought the machine in.

Salisbury Plain (Bristol School).—Mr. Busteed on 80-h.p. monoplane in afternoon, but no other trips made.

Bristol (Filton).—Mr. Gordon England for first time on new tractor biplanes of his design, in which pilot and passenger sit tandem. Made really fine flight of about half an hour, landing well. Machine answers controls well, and shows good speed.

FRIDAY, November 15th.

R.F.C. (Central Flying School).—Clear, calm, with sunshine, light northerly breeze later in day. Five machines in air at once. On Avro 406 Capt. Salmond 20 mins. alone at 1,000 ft., and with Lieut. Martyn 5 mins.; Lieut. Martyn on straights 15 mins. and circuits 10 mins.; Capt. Fulton, R.F.A., with Lieut. Martyn 25 mins., with Leading Seaman Bateman on practice ground 20 mins. On Avro 404, Petty Officer Andrews one good 15 mins. flight; Lieut. Hubbard (twice) 15 mins.; Lieut. Young 15 mins.; Lieut. Stopford 5 mins.; Capt. Salmond with an air mechanic on practice ground 30 mins. After lunch, on Avro 404, Lieut. Hubbard 15 mins.; Lieut. Martyn 10 mins.; Lieut. Young 12 mins., very good flight at over 1,000 ft.; Petty Officer Andrews 15 mins., good circuits; Air Mechanic Higginbottom 15 mins, this exceedingly good flight at 1,800 ft.; Capt. Fulton with Leading Seaman Bateman on practice ground 18 mins. On Maurice Farman 403, some exceedingly good flights, Lieut. Abercromby 10 mins. and 13 mins.; Lieut. Longmore, R.N., 25 mins. alone, and with Major Ashmore 7 mins.; Lieut. Waldron with Major Ashmore 8 mins.; Major Ashmore 18 mins.; Lieut. Williams-Freeman 25 and 11 mins.; Lieut. Smith-Barry 16 mins.; Lieut. Winfield-Smith 11 mins.; Mr. Maurice Farman 5 mins.; Master Mechanic T. O'Connor 8 mins.; Lieut. Stopford 12 mins. On Short tractor 413, Captain Risk 15, 12, and 10 mins.; Major Gerrard, R.M.L.I., 6 and 16 mins.; Lieut. Shepherd 13, 4, 25, 10, and 5 mins. On Short biplane 401, Lieut. Pepper 10 mins.; Lieut. Atkinson 12 mins.; Capt. Risk with Leading Seaman Brady 15 and 17 mins.; Lieut. Lushington, R.M.A., 15 mins.; Lieut. Hartree 10 mins.; Major Gerrard, R.M.L.I., with Leading Seaman Prickett 12, 6, and 19 mins.; Mr. Maurice Farman 4 mins. On Friday morning Mr. Percival flew over from Lark Hill on Dunne biplane and had some trouble with his engine. Mr. Percival managed to get going later, and flew back to Lark Hill at about 4 p.m. Major Higgins with Lieut. Anderson flew over from Lark Hill on Factory biplane 203 (B.E.3), and returned after about half an hour.



Capt. Chamier, Indian Army, who took his certificate on a Caudron.



Lieut. Percival, R.G.A., a Bristol pilot of recent date, and brother of Mr. N. S. Percival, the well-known aviator.

Hendon.—Grahame-White School started work at 8.10 a.m. under Pilot Noel, Lieut. Birch doing 10 minutes straights in slight wind. At 8.20 Lieut. R. G. D. Small rolling practice No. 7 biplane, afterwards instruction with Mr. Noel; later Major Madocks and Lieut. Birch in turn doing straights on No. 7; Mr. Davies rolling for over an hour on 4 B. machine under instruction of Mr. Manton. In afternoon Lieut. Birch circuits with Mr. Noel and Mr. Carr straights with same instructor.

At W. H. Ewen School.—Pupils had first outing this week owing to bad weather. Work started at 7.30 a.m. under M. Baumann. Lieut. McMullen and Mr L. Russell making excellent straights. Lieut. M. Noel rolling well. Mr. Sydney Pickles out with 35-h.p. Caudron and handed over to Lieut. McMullen, who did well for first day on Caudron. During afternoon Mr. Sydney Pickles again out with Caudron, and handed over to Lieut. McMullen and Mr. Lawford, who put in two hours' practice; M. Baumann also getting good results from pupils on monoplane No. 2, Mr. L. Russell good straights and half-circuits, and Lieut. M. W. Noel doing well. To finish up

Mr. Sydney Pickles had out 60-h.p. Caudron two-seater, taking up several pupils for instruction

At Bleriot School.—Messrs. Gandillon, Reilly and Clappen straights in good style on L.B.3.

At Deperdussin School.—No. 3 having arrived from the works, pupils and staff busy tuning up. Later, Mr. Whitehouse, Mr. Mapplebeck, and Lieut. Hawker all doing straights and making satisfactory progress. Later, Lieut. Hawker half a circuit.

At Aircraft Company.—M. Verrier out testing new Maurice Farman with Mr. Clement Greswell, flying over surrounding country for 40 minutes.

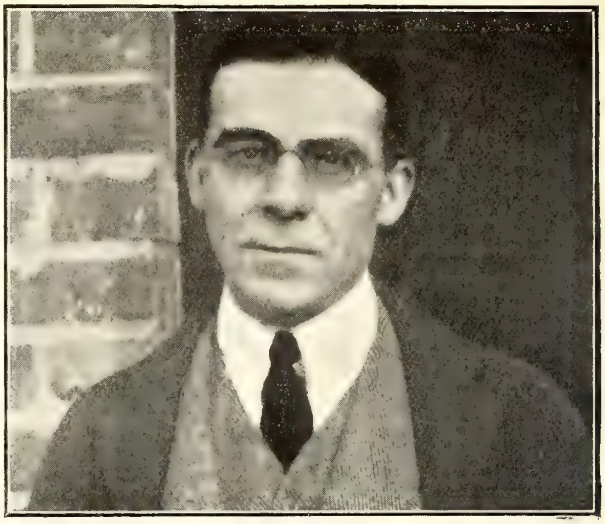
At Blackburn School.—7 a.m., Mr. H. Blackburn test flight of ten minutes on brevet machine, following which Messrs. Spink and Buss had each half an hour's practice. In evening Mr. H. Blackburn testing. Then Messrs. Buss and Spink did half an hour's practice, and Mr. H. Blackburn brought out newly-re-assembled rolling machine for short flight.

Brooklands.—At Flanders School.—Mr. Raynham flying for quarter-hour, and again for half an hour before lunch. After lunch took Mr. Summer for passenger flight for ten minutes. In evening solo circuits for about twenty minutes.

At Vickers School.—Mr. Knight out on Farman in morning for test flight, then Mr. Barnwell for circuits on same machine and then handed over to Mr. Corballis, who put in excellent straights and was landing very well. Mr. Knight then out on Farman giving instruction to Mr. Polluk. Mr. Barnwell then out on No. 5 for circuits, then handed over machine to Capt. Stott who put in very good right and left circuits. Later in the morning Mr. Barnwell out on Farman with Mr. Polluk for instruction, then handed over to Mr. Corballis, who was showing great improvement. Mr. Knight out later with Mr. Polluk for instruction. Mr. Barnwell out also on No. 5 for very pretty flight, then handed over to Capt. Stott, who put in some good circuits. In afternoon, Mr. Knight out for test on Farman, then handed over to Mr. Corballis who did circuits. This pupil is making rapid progress. Mr. Knight then up with Mr. Polluk for instruction. Mr. Barnwell out on No. 5 for very pretty flight.



Mr. J. Lawrence Hall, the Blériot Pilot who has been doing much flying at Hendon.



Mr. C. C. Turner, Certificated Aviator, and trenchant critic of official methods in the "Observer," "Pall Mall" and "Field."

At Bristol School.—Mr. Bendall with Mr. Ewing, Mr. Merriam with Lieuts. Mills and Empson. Mr. Bendall with Lieut. Mills and Mr. Ewing, Mr. Merriam with Lieut. Todd and Mr. Ewing. Lieut. Empson then for first flights alone. Messrs. Bendall and Merriam both testing tractor biplane. Mr. Merriam with Mr. Featherstone to 2,000 feet making spiral glide down. Mr. Merriam in afternoon taking Lieuts. Mills and Todd and Mr. Ewing. Lieut. Empson straights. Mr. Bendall with Lieuts. Todd and Mills and Messrs. Ewing and Featherstone.

At Percival School.—Mr. Hodge joined, and was rolling.

Liverpool (Waterloo).—Mr. Hardman out on "Y" and flew inland and over Ince Woods at 1,700 feet. Mr. Melly took same machine round Hightown and Crosby at 2,500 feet. Mr. Birch afterwards on same machine round Hightown and Sefton at 4,100 feet. He subsequently gave an exhibition in neighbourhood of hangars.

Salisbury Plain.—At Bristol School.—Mr. Pizey first up with Lieut. Rees, then with "Capt. Penfold," pupil then going alone. Mr. Pizey with Lieut. Rees on tandem to 1,200 feet, and with same pupil on biplane. Mr. Busteed on mono.

Windermere.—Mr. Adams (fresh back from Paris show and full of ideas) took "Seabird" out passenger carrying, machine flying strongly and climbing well after extensive alterations and remodelling, but is not so smooth on water as "Water Hen." "Seabird" is the only waterplane flying on Windermere just now.

Objector (watching an evening flight): "Great ugly nightmare! Wouldn't it be a fine target?"

Aviator: "Good sport for a big game shooter, eh?"

Objector: "Yes, if I had a big enough gun; and I'll get one if this goes on, you see if I don't."

Aviator: "Why not join the Turks and shoot as many Bulgarian big birds as you like?"

Objector: "Providence makes strange bedfellows. But they say the Turks have no beds—or breakfasts. Not good enough."

Aviator: "Perhaps that is why they are such good fliers!"

Bristol (Filton).—Mr. Gordon England flew for half an hour on his new tandem-seated biplane. Two miles from landing ground his engine (of foreign make) failed, and from about 1,200 feet he made a remarkably fine landing, proving good gliding angle of biplane. Later again out, reaching 2,500 feet and flying for over half an hour.

SATURDAY, November 16th.

Hendon (At Grahame-White School).—Lieut. Birch and Major Madocks straights under Chief Pilot Noel in slight wind and Mr. Power rolling with Instructor Manton. Mr. Noel out trying new Grahame-White Farman type two-seater biplane, which flew very well.

At W. H. Ewen School.—Pupils out at 7.30 a.m. under M. Baumann. Mr. L. Russell straights at 30 ft. on monoplane No. 2. Lieut. M. W. Noel on same doing well. Mr. Sydney

Pickles out with 35-h.p. Caudron biplane, followed by Lieut. McMullen, who made good flights at 30 feet.

At Bleriot School.—Mr. Clappen straights on No. 3.

At Blackburn School.—Several short flights by Mr. H. Blackburn, doing circuits in good style.

At Aircraft Company.—M. Verrier on Maurice Farman, flying in his usual fine style, taking many passengers.

Brooklands.—At Flanders School, Mr. Raynham flying for ¼ hour in afternoon. No. 6 monoplane has now returned to works to be fitted with new type wheelbase. Biplane with 45 A.B.C. engine should be out by end of week.

At Vickers School.—In morning Mr. Barnwell out on Farman with Mr. Polluk, Mr. Carballis also on same machine for useful circuits. Later in morning Mr. Barnwell with Mr. Polluk for instruction on Farman. In afternoon Mr. Barnwell on Farman with Mr. Polluk, the pupil making great strides. Mr. Corballis also for good circuits on Farman followed by Mr. Knight with Mr. Polluk. Mr. Barnwell for test flight on No. 5 followed by Capt. Stott, who put in good right and left circuits, and is ready for his brevet.

At Bristol School.—Mr. Merriam with Lieuts. Mills and Todd and Messrs. Loyd and Ewing. After breakfast Mr. Merriam with Mr. Featherstone and Lieut. Mills. Mr. Bendall in afternoon with Capt. Richards, Mr. Merriam with Lieuts. Mills and Todd and Capt. Richards, Messrs. Merriam and Bendall bomb-dropping, Mr. Merriam winning.

At Percival School, Mr. Hodge out rolling on biplane.

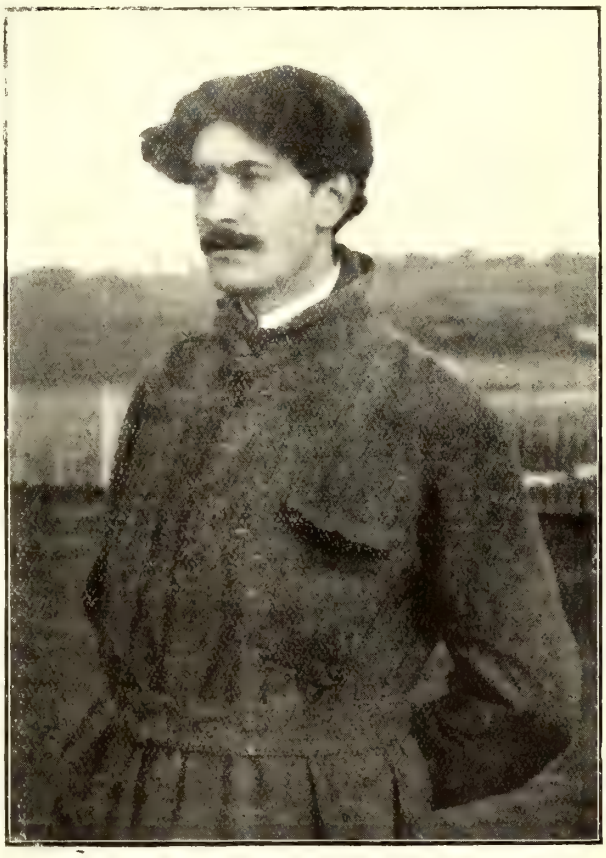
At Herbert Spencer School.—Mr. Spencer out alone, afterwards taking up several passengers. Did not compete in bomb-dropping competition owing to darkness.

Liverpool (Waterloo).—Mr. Melly took out "Y" Anzani and did figures of eight to test weather, followed by Mr. Birch, who flew round Southport and back (32 miles) at 3,000 ft., being in air 44 mins.

Birmingham (Midlands Aerodrome, Castle Bromwich). Mr. B. C. Hucks flying 70-h.p. Blériot, under auspices of Midland Aero Club. Weather very foggy, but with assistance of petrol fire Mr. Hucks made several excellent flights. At 500 feet he was completely lost to view, so did not have opportunity of bettering Midlands altitude record of 7,000 feet which he made the previous Saturday.



Air-Mechanic McCudden, one of the first non-commissioned pilots of the R.F.C.



M. Galy, the French pilot who has been flying the Caudron at Hendon.

Bristol (Filton).—Mr. Gordon England on tandem-seated biplane out for about three-quarters of an hour, reaching 3,500 feet.

SUNDAY, November 17th.

R.F.C. (Central Flying School).—Fine, clear, calm. Lieut. Waldron arrived about mid-day on new Maurice-Farman biplane from Farnborough. This is one of first, if not first, Maurice Farman biplane to be built in this country.

Hendon.—At Grahame White School.—Flying started punctually at three o'clock, Mr. Louis Noel making some fine exhibition flights and taking up many passengers on the 80-h.p. Henri Farman biplane. Mr. Desoutter was also making usual fine flights. Mrs. Stocks on Blériot monoplane, and Mr. Manton on No. 5 biplane.

At Aircraft Company.—M. Maurice Farman flying round aerodrome, afterwards taking Mrs. Holt Thomas for cross-country flight in direction of Ealing. After taking another lady passenger he handed machine over to M. Verrier, who gave Mr. Mansfield a flight of ten minutes' duration. During the afternoon amongst others he took up Mr. C. G. Grey.

At Blackburn School.—Mr. H. Blackburn took brevet and rolling machines for test flights, after which Dr. Christie did an hour and a-half practice in straights and landings. Control of machine in side breeze needed much warping, which pupil did quite capably.

Brooklands.—At Vickers School.—In morning Mr. Barnwell, Mr. Knight and Mr. Corballis all out on Farman, Mr. Knight also giving instruction to Mr. Polluk. In afternoon Mr. Barnwell out for very pretty flight of 25 minutes on No. 5 up to 4,000 feet over surrounding country. Mr. Knight and Mr. Corballis also out on Farman and Mr. Polluk being given instruction by Mr. Knight, latter occupying passenger seat. Mr. Barnwell had the misfortune to jump into bracing wires of Farman's elevator and broke some of his teeth, and also sustained a fractured upper jaw during the "relay race." All

will wish him a very speedy recovery. Hard luck for such a fine flier to be seriously injured in such a silly competition.

At Bristol School.—Mr. Bendall in afternoon with Lieut. Mills, Captain Richards, Mr. Ewing, and also a lady passenger. Messrs. Merriam and Bendall both in "relay race." Mr. Merriam with Mr. Loyd.

At Percival School.—Mr. Percival flying 35-h.p. Caudron in morning and Mr. Hodge rolling on Percival biplane.

At Herbert Spencer School.—Mr. Spencer out alone, afterwards doing straight flight with Mr. Marcus, then took first place in the relay race with Mr. Hawker on Sopwith biplane.

Before race started Mr. Hamel on Blériot arrived from Hendon, and after short stay returned.

Mr. Petre on Martin-Handasyde did circuits at considerable height.

Mr. Grahame-White's Return.

On Tuesday, Mr. Claude Grahame-White returned from Spain, where he has, with his wife, been combining a most enjoyable holiday with business. Besides shooting and hunting he had an interview of two hours' duration wth the King of Spain, and he tells the writer that His Majesty has an excellent all-round knowledge of aeroplanes and their possibilities, besides being keenly interested in novel mechanical ideas. Mr. and Mrs. Grahame-White had a trip in one of the Spanish military dirigibles, and visited the military aerodrome, where much work is in progress. His friends will be glad to hear that he is looking very much better for his trip, for before he left England he had been seriously indisposed.

Activities at Issy.

Mr. C. Phillips Vierke, a well-known British journalist resident in Paris, who has long taken a lively interest in aviation, writes:—Voisins and Nieuports have now permanently transplanted their head workshops to Issy-les-Moulineaux, not on the champ d'aviation itself, but facing it on the other side of the road. Nieuports have three huge workshops full of machines in the making.

Voisins are building a tremendous monster biplane all steel and grey painted, with a span of 22 metres. It is almost finished, and looks a veritable colossus. It is really a hydro-aeroplane, built to the special order of M. Deutsch de la Meurtle. The boat body, in wood, is about 6 ft. deep, and will accommodate six passengers in addition to the pilot. Except for the boat arrangement, it is simply an enlarged "type militaire," with under planes slightly shorter than those above, and monoplane tail. The aspect ratio is astoundingly high. In fact, the planes do not seem any wider than on the familiar type of machine. This monster will be fitted with a 200-h.p. Clerget motor, and the pilot will be Rugère. My old friend Colliex has parted company with the Voisins.

There was some excellent flying to be seen during the afternoon. After a couple of Voisins had wobbled round, the monoplanes got to work and things looked up. I noticed that the Voisins, although in the hands of crack pilots, were always scrupulously careful as to their modus operandi of getting into the air, e.g., always head to wind, and left-hand turns. As they took the gusts from the fortifications and chimneys, they rocked most alarmingly, and were never really happy until about 500 ft. up.

In striking contrast, Duval, on a little Caudron biplane, was always quite at home at any altitude, and performed right-hand turns within a few feet of the ground. He spun round on his right wing tip like a tee-to-tum. The crowd at first thought all was over with him, but on constant repetition of the same process ultimately discovered that the man aloft was only amusing himself. What a revelation, this wonderful stability of the little Caudron nowadays compared with its début in the hands of Grandseigne and Céi!

Two Lancashire Successes.

The first two regular pupils of a Lancashire aviation school have just taken their certificates, these being Mr. W. L. Hardman and Mr. Edward Birch, both of Liverpool. As was duly noted in "the Week's Work," they took their certificates at the Melly School at Waterloo recently on Mr. Melly's 35-h.p. Anzani Blériot and one only hopes that their success will result in more Liverpool sportsmen taking up flying. There is magnificent scope for hydro-aeroplanes in the Liverpool district and once the new sport catches on it should have a great future among the North Wales and Lancashire holiday resorts.



Above, Mr. Birch, and, below, Mr. Hardman, the two crack Lancashire pilots who have been doing such splendid flying on Mr. Melly's 35-h.p. Blériot at Liverpool. They fly this little machine at anything from 1,000 to 4,000 feet.

The Essence of Post-Impressionism.

Enthusiasm is commendable and imagination is ever a wonderful thing, but there is something transcendent, something magnificently pathetic also, about the picture of a small school-bound boy lighting stealthily his candle at dead of night and endeavouring to re-focus a dispersing mental impression of Hendon, to re-induce, as it were, the aviatic "atmosphere," by holding in his lonesome flame a teaspoonful of castor oil.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.

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GRAHAME-WHITE'S Waterplane in the clouds. August 31st. Amateur's extraordinary and unparalleled snapshot. 7d. post free.—H. CHURCHILL, Southend, Essex.

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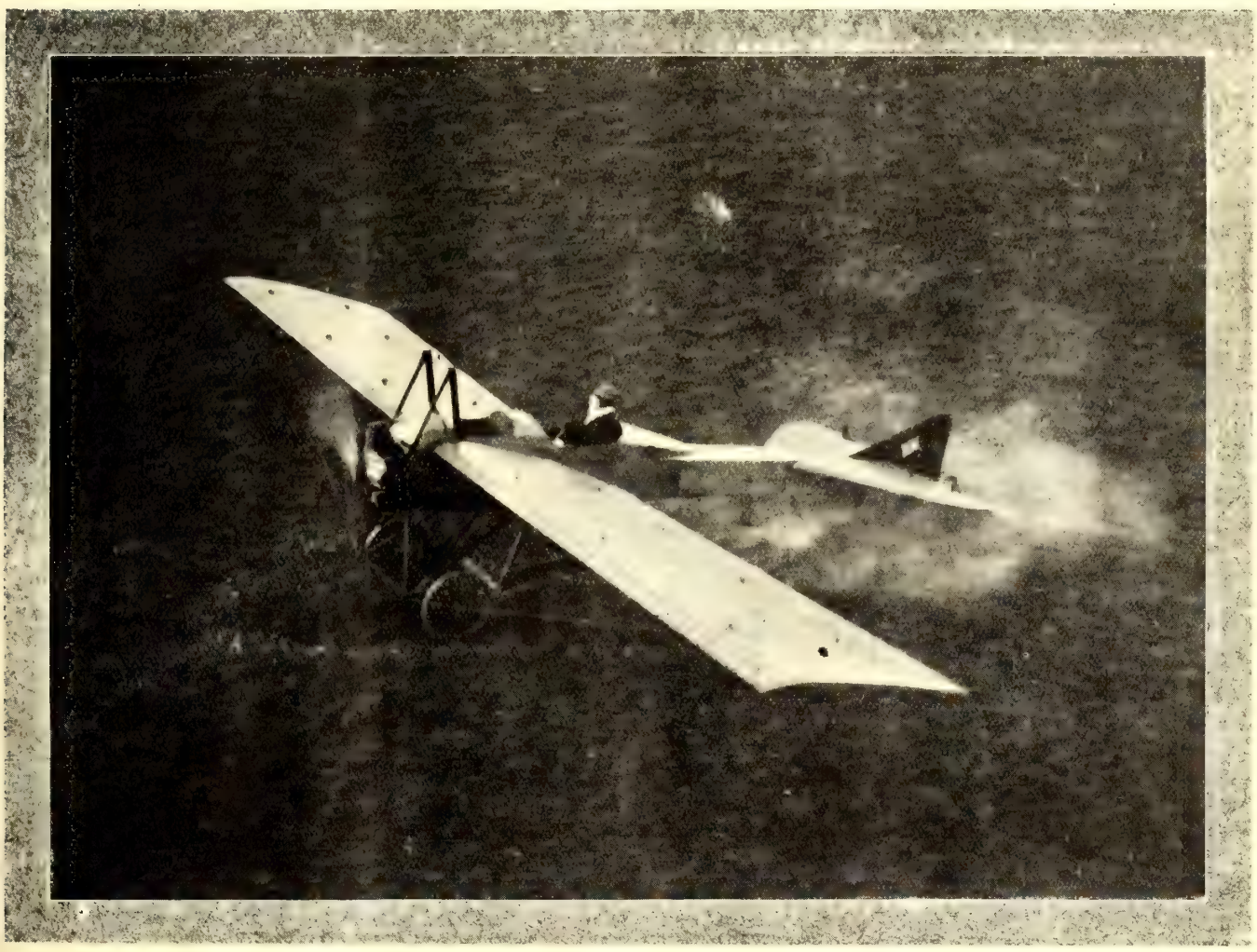
THE AEROPLANE

1d WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, NOVEMBER 28, 1912. No. 22.

FROM ABOVE.



A bird's-eye view of Lieut. J. C. Porte, R.N., taxying in on the 100-h.p. Deperdussin after one of his fine flights at Hendon on Sunday. Note the smoke cloud round the tail.

70 h.p. Monoplane Flying at Hendon.



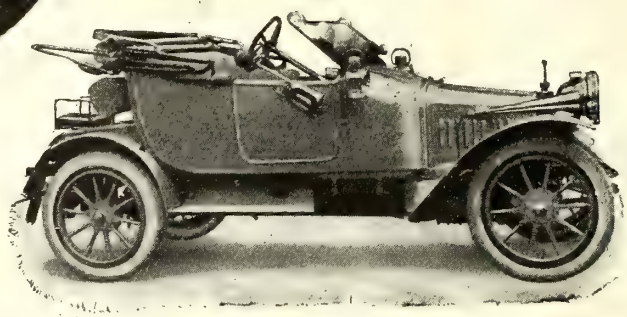
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INSPECTION.

In a certain big French factory, where aeroplanes of excellent quality are turned out, there is painted on the walls in flaring letters, that who runs may read, a notice worded thus: "A fault can be repaired. A hidden fault is a crime. Remember that on your work depends the lives of brave men." These words should be branded into the brain of every workman employed in an aeroplane factory, till they become part of his being. They should be printed in his pay sheet, they should be fixed as a motto above every work-bench. No work is too good for an aeroplane.

In other trades in this country it is becoming quite customary to issue little commercial texts. For instance, in one workshop one sees everywhere the words "Water and gas cost money. Turn them off when you have finished." Over the counter of the store-room in another factory one knows of the motto: "The Lord helps those who help themselves, but the Lord help anyone found helping himself here." And at each lift door in a north country shop of many floors is the notice: "Workmen and others are earnestly requested not to fall down the hoist." All the notices of this nature have but one object in view, the saving—and so the making—of more money for the employer. In some few modern factories run on the new co-partnership principle men are enjoined to make for economy and efficiency, because it is to their own interest to do so, but in no trade hitherto has it been worth while to impress on the workpeople any consideration for those who are to use their products after they have left the works.

Naturally, careful supervision is exercised in all factories turning out armament or anything pertaining to military equipment, and the gentlemen who supplied brown paper boots to the troops in the Crimea, or ptomained tinned meats to those in South Africa, doubtless found themselves considerably unpopular. But even their responsibility is not so direct as that of the workman who scamps his work on an aeroplane, or of the manager who permits scamped work to pass, either through a desire to save expense, or through insufficient inspection. The passing of defective work, either by design or through carelessness is equally reprehensible, and no punishment here or hereafter can be sufficiently severe for those guilty of such a crime.

Universal ignorance of the strange stresses set up under varying conditions when flying make the risks of aviation sufficiently great. Even our leading scientific designers, who talk of their all-round factors of safety of ten to one, never really know how near the edge of all things their machines go at times. Then there is the maker who attaches a five-ton cable to a five-hundred-weight bolt, or who does not know the difference between Canadian hot-air-dried and English ash for spars—how much less does he know about the danger of his machines? Yet people go on flying machines of all sorts, and somehow we escape having an unduly large death-roll, despite the combined recklessness and ignorance of constructors, mechanics, and pilots. So far, at any rate, we have not had a known case of a fatal accident being caused by a machine breaking in the air through any defect which more careful inspection might have revealed, and it certainly seems that we in this country do inspect our machines rather more carefully than do most makers and pilots abroad.

Nevertheless, even more trouble should be taken to impress on workmen and foremen that even their best work is not good enough for aeroplanes, and the need for this will become more and more urgent as the industry expands and the call for workmen imports men from other trades. The writer knows of one instance where it took a constructor quite a long time to impress on an excellent carpenter that he wanted strength above all things. The man was quite grieved because he was not allowed to dovetail fuselage joints in a way which gave them a beautiful finish and took off nearly all their strength. The best of cabinet makers has no idea of the strains wood will stand if properly worked, for he has never had to consider strength in making tables and chairs. One has only to look at an ordinary ladder to see how the old type of wood worker can combine the maximum weight with the minimum strength. Needless to say, the work turned out by these newcomers to the aeroplane industry will need the most careful inspection, if we are to maintain our reputation for reliability in construction.

Inspection Run Riot.

It is, however, possible for inspection to become a curse instead of a blessing, and this may fairly be said to be the case when badly organised inspection deprives our aerial defence force of machines which are urgently needed for immediate use. It will be remembered that some months ago a number of machines of the type of the famous "B2" were ordered by the War Office from British manufacturers. In the ordinary course of affairs these machines would have been delivered a month or more ago, and considerably more flying would have been done if they had been so delivered.

In these orders no latitude whatever was given to the constructors. Certain engines, of foreign make, were specified, and although waiting for these

engine meant considerable delay, it was made quite clear that nothing "just as good" would be accepted, even if it could be proved to be considerably better. Everything had to be made to drawings supplied by the Royal Aircraft Factory, which was quite right and proper, and before anything in the way of assembling was permitted every piece had to be inspected by officials of the Factory, which was also as it should be. But here is just where the trouble began.

Whether the number of inspectors is inadequate, or whether the inspectors themselves have too many other interests, is not quite clear, but the fact remains that these official inspections have delayed the machines more than anything else.

Let it be perfectly clear that only three firms are concerned in these orders, and that in no case has the chief of any one of these firms made any complaint to the writer. The matter is common talk in the aeroplane industry, and where so many employees of all grades are concerned it is impossible for even the best-intentioned of works managers to keep his men from talking when they see the jobs on which they ought to be busy held up week after week because some Government official or other has not given the word to proceed. The remarks apply to all three firms, so the Factory officials will not attain any object by "taking it out of" any one firm by way of retaliation.

The chief trouble seems to be that when work is ready for inspection no one arrives to inspect it. Messages of various sorts are sent to the proper quarters, and then after days, or perhaps weeks, of waiting someone arrives. Perhaps he passes the work. Perhaps he is afraid to take the responsibility himself, and asks that samples shall be sent to the Factory to be inspected more minutely by the higher officials at his headquarters, which means still more delay.

One hears of designs and dimensions being altered after certain work has actually been done exactly to the original designs supplied, so that a batch of work has to be scrapped, and a new lot put through, with still more delay as the result. It is even said that these alterations have been made necessary by errors in the dimensions supplied, so that parts made to instructions could not be fitted together.

Practical constructors may also be interested to hear of an inspector going over a piece of wood with a micrometer gauge, an operation which is not without humour when one considers the variation in the bulk of wood caused by variations of temperature and humidity. It seems highly probable that an inspector working on these lines might go on for ever refusing batches of wooden parts on account of their being under or over size unless he happened by luck to arrive on a day when temperature and humidity together gave him the exact dimensions specified.

One hears also of small quibbles about materials used, if they do not happen to be of the precise make or kind most favoured by the officials of the Factory, though quite possibly the lengthier and wider experience of the aeroplane constructor may have shown them to be equally reliable.

All these manifestations of red tape have naturally caused delay after delay, with the result that the officers of the Royal Flying Corps, who are the only people who really matter, are clamouring for more machines and roundly condemning the unfortunate British manufacturer for his dilatoriness. The writer only hopes that this explanation will, at any rate, disabuse the Flying Corps of any idea that the manufacturers are to blame.

One cannot altogether blame the inspectors either, for when one is not trained to take responsibility one must naturally have an inclination to refer back to a higher authority, though this does not account for the long delays before an inspector arrives after he is warned that the maker is ready for him.

It would be well if things could be done Navy fashion, for one gathers that when a manufacturer engaged on an Admiralty job has intimated that a machine, a workshop, or a job of any kind is ready for inspection, an inspecting officer arrives rather quicker than a letter by return post would do. He wastes no time, he makes no palaver, he just inspects, and either it is good enough or not good enough, and there is an end of it. At least, so one gathers from those who have had the luck to handle Admiralty work. And it is what one would expect from men who are used to relying on their own judgment from their tender youth upwards.

Let us hope that before the British aeroplane constructors have all closed down for lack of proper support some system may have been evolved in desperation by the military authorities at the War Office, which will free the supply of aeroplanes to the Army from the red tape of civilian officialdom.

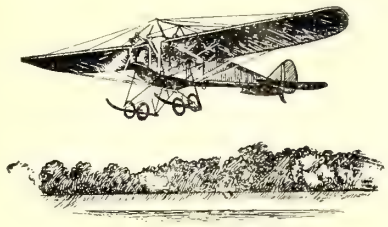
By all means inspect the machines during and after construction as thoroughly as possible, it is only fair to our military pilots that they should be so examined, but let it be done in a businesslike way, so as to delay things as little as possible, and if possible, let the inspector hasten the work by permitting or suggesting minor alterations if by so doing he can hasten delivery.

An Odious Comparison.

An idea of the magnitude to which a well-managed aeroplane business, adequately supported by Government orders, can attain is shown by a modest little note at the end of the handsome Farman catalogue to which reference was made recently. This states that 700 pilots have taken their certificates on Farman machines, that 300 military aviators are flying Farmans, and that 100 military aviators have taken their superior brevets on Farmans. The 700 may include pilots of all races, and the 300 may include military pilots of all nations, but the 100 are certainly all French military pilots, which gives one some clue to the enormous number of properly trained military pilots the French must have. We, on the other hand, have actually only three military pilots who hold the superior certificate of the Royal Aero Club, which is considerably easier to get than is the French military brevet, and it is quite safe to assume on the strength of this that the French must have at least 300 properly trained military pilots to-day as against about a dozen in this country.

Mr. Isaac's Move.

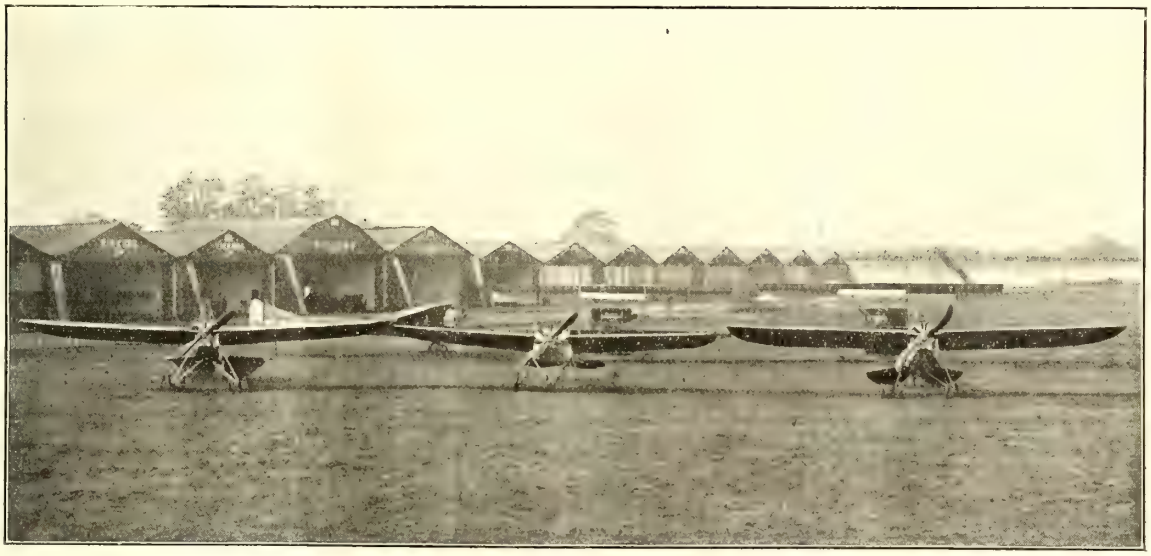
His numerous friends in the world of aviation will be interested to hear that Mr. Bernard Isaac, the London manager of the Grahame-White Aviation Company, Ltd., who has done so much by his clever advertising to assist the success of Hendon, has been appointed to the Traffic Development Department of the combined London Electric Railways. While regretting his loss to aviation, one must congratulate Mr. Isaac on having been appointed to so important a post, and it is gratifying to learn that he has no intention of slackening his interest in flying, so one may hope to see him in his spare time among the useful section of the honorary officials at Hendon.



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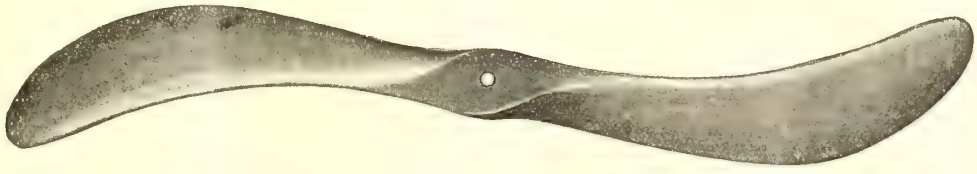
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A Military Specification.—(*Continued.*)

BY W. E. de B. WHITTAKER.

Each fast scouting aeroplane supplied should be capable of carrying sufficient fuel for a flight of four hours, thus giving such a machine a range of something over two hundred miles. The greater the distance this type of scout is able to travel without replenishment the better for the particular duties expected of it. Its sphere of action is situated many miles in advance of even the outposts.

The minimum speed required is in excess of 65 miles an hour. Anything less than that is of no use whatever. Such a speed is easily attainable on any efficient single-seated monoplane of the present day, and a number of biplanes have also proved their speediness.

Another point forgotten in any published European specification for military aeroplanes is that embodied in Rule 11 of the second American specification. It reads as follows :—

"The efficiency and reliability of the system of control must have been demonstrated before the purchase order is placed. The aeroplane must be capable of executing a figure eight within a rectangle 500 yards by 250 yards, and without decreasing its altitude more than 100 feet at the completion of the figure eight. This test to be made by the aviator alone without carrying extra weight."

One knows of many aeroplanes admirable as flying machines, which lack manœuvring power to an extraordinary degree. Particularly so are those claiming automatic stability. The Etrich monoplane, to take one case alone, requires a large space in which to make a complete turn. There is none of that precision so obvious in the case of the Wright biplane, the Blériot monoplane, and many other well-known aeroplanes. Manœuvring power is one of the most desirable attributes on an efficient military aeroplane. A slow aeroplane which responds quickly and neatly to its controls can outclass a very much faster machine which is sluggish in turning. A further point in connection with controls is that it is possible and feasible at this stage of aviation to insist on a standard type. There could be no cause for complaint on the part of manufacturers if it were laid down that steering shall always be controlled through a foot bar or pedals, and wing warping by a wheel placed at the top of a column, the backward and forward movement of which actuates the elevators. In time of war it will not be possible for one aviator to fly one type of machine continuously, and it would diminish unnecessary risks if he had not to master new movements (which should be intuitive) when flying a strange aeroplane.

So far as gliding angle is concerned one cannot do better than adopt the rule numbered 5 in the conditions of the Military Aeroplane Competition, which reads as follows :—

"Plane down to ground in a calm from not more than 1,000 feet, with engine stopped, during which time a horizontal distance of not less than 6,000 feet must be traversed before touching."

The results of the military trials prove this to be not unreasonable, though shortly before there were claims on the part of various makers—chiefly foreign—to have designed aeroplanes capable of making descents with the engine stopped at angles varying from 1 in 12 to 1 in 20. The days of fairy tales are not past, and only the hard trial of careful tests can destroy the magic of designers' inspired statements. Moreover, one would imagine an aeroplane possessing so perfect a gliding angle would be more of a trial than anything else under certain conditions.

All aeroplanes supplied should have a range of speed of 40 per cent. of its maximum rate of progress. This variation is essential if one intends to employ aeroplanes of high speeds. Landing will not be an easy problem, even under the most favourable conditions that one can expect in time of war. Aerodromes are few, and armies will not give battle deliberatey in districts providing good landing grounds. To land an aeroplane at 50 miles an hour requires considerable skill and an open space of some size. The use of brakes is advisable, but they can only be brought into action towards the end of the run on the ground. On many fast aeroplanes a premature application of a brake would almost certainly end in disaster.

It is not necessary to fit any device to simplify steering whilst running on the ground. Servile imitation of motor-cars should be suppressed in the interests of the structural strength of aeroplanes. The ordinary machine, as it is, can be manœuvred on the ground with quite sufficient precision. Any rolling which may be necessary when in the vicinity of troops should



The Handley Page monoplane (70-h.p. Gnome engine) getting up.

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be carried out with the aid of mechanics who would guide the machine by holding the wing tips after the manner common on any aerodrome of the present day.

The length of the flight test should not exceed an hour, as it is not necessary to test the endurance of the aviator. So long as an aeroplane will carry its full load and pass the requisite tests one can learn nothing by keeping it in the air for long periods of time.

The majority of the above conditions apply in some degree to the heavy weight-carrying aeroplane. This type would be engaged on tactical reconnaissance, bomb-dropping (if practised) and range-finding. The speed attained should be not less than fifty-five miles an hour, and sufficient fuel should be carried for a continuous flight of three hours. Accommodation has to be provided for an observer and a complete wireless outfit. The rate of ascent, fully loaded, should be in excess of 220 feet a minute. The case into which this aeroplane could be packed should be 30 feet by 10 feet by 8 feet.

The American rule which forbids the painting of the maker's name or trade-mark on the machines delivered is obvious and proper. A small name plate fixed in a stated position is ample.

The following is a suggested specification. The letters A.S. and a number preceding any paragraph indicates that it has been taken en bloc from the United States Army Specification published in these pages two weeks ago. Similarly the letters M.C. denote that the paragraph following has been taken from the rules of the Military Aeroplane Competition. Where necessary the variation in conditions required for the heavy machine is given in square brackets.

1. All manufacturers desiring to submit aeroplanes for purchase to the Royal Flying Corps must give notice in writing, giving details of form, engine-power, speed, weight, etc. Plans and stress diagrams must be submitted at an early date. The price of such aeroplanes to be stated.

2. All aeroplanes submitted must be capable of being dismantled and packed in a case 20 ft. by 10 ft. by 8 ft. in not more than thirty minutes. Assembly from the packed conditions should take not more than forty-five minutes. [Heavy-type aeroplanes must pack into a case 30 ft. by 10 ft. by 8 ft.]

3. A flight of one hour must be made before delivery, with the aeroplane carrying petrol and oil for a flight of four hours. [Heavy-type aeroplanes must carry a load of 350 lbs. including passenger, in addition to fuel for a flight of three hours.]

4. All aeroplanes submitted must be capable of rising at the rate of 300 ft. a minute for five minutes when loaded for a flight of three hours. [The rate of ascent of heavy-type aeroplanes loaded as in Clause 3 should be 200 ft. a minute for the first 1,000 ft.]

5. Speed in normal flight when fully loaded should not be less than sixty-five miles an hour. [Heavy-type aeroplanes must exceed fifty-five miles an hour.]

6. All aeroplanes submitted must be capable when flying of a variation in speed of 40 per centum of their maximum speed.

7. Each engine submitted must be fitted with a starting device that it may be started by the pilot from the interior of the machine without exterior assistance and without touching the propeller. Each engine must be capable of throttling to run at a reduced speed.

8. All aeroplanes submitted must, when fully loaded as in Clause 3, alight three times and arise three times without damage on and from a specified tract of ground, this tract to be the same for all machines.

9. (M.C. 5) All aeroplanes submitted must be able to "Plane down to ground in a calm from not more than 1,000 feet, with engine stopped, during which time a horizontal distance of not less than 6,000 feet must be traversed before touching."

10. (A.S. 12) The efficiency and reliability of the system of control must have been demonstrated before the purchase order is placed. The aeroplane must be capable of executing a figure eight within a rectangle 500 yards by 250 yards, and without decreasing its altitude more than 100 feet at the completion of the figure eight.

The above specification is drafted in consideration of present conditions. In six months or a year the rules would naturally be of far greater severity.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," War Office, November 15th :—

Establishments. Royal Flying Corps. Central Flying School. —Capt. John M. Salmond, the King's Own (Royal Lancashire Regiment), to be an instructor (graded flight commander), vice Capt. P. W. L. Broke-Smith, R.E. Dated November 12th, 1912.

From the "London Gazette," War Office, November 22nd :—

Establishments. Royal Flying Corps. Military Wing.—Major John F. A. Higgins, D.S.O., Royal Artillery, to be a flight commander. Dated October 28th, 1912.

Lieutenant John D. Mackworth, the Queen's (Royal West Surrey Regiment), to be a flying officer. Dated October 4th.

Special Reserve of Officers. Royal Flying Corps. Military Wing.—The appointment of Second Lieutenant (on probation) Geoffrey de Havilland is antedated to September 2nd, 1912.

Admiralty Appointments—The following were announced on November 19th :—

Lieut. J. C. Porte (retired) to the "President," additional, for aviation course, undated.

Lieut. C. J. L'Estrange Malone, R.N., has been appointed to the "President" for special duties.

Captain C. Mellor, R.E., and Lieutenant D. S. Lewis, R.E., have been selected (on probation) for the Royal Flying Corps.

Lieuts. F. G. Small, 2nd Connaught Rangers, and C. W. D. Arthur, 5th Royal Munster Fusiliers, have been selected (on probation) for the Royal Flying Corps.

FRANCE.

Considerable agitation is being made in France as to the delay in the formation of a reserve to the Military Aviation Corps. "M. le Bureau," the curse of the country throughout the centuries, is blamed for the tardiness of action. M. Marc Dousseaud, deputy for the Corrèze, has taken upon himself the duty of urging upon the Government the necessity for haste. He has obtained satisfactory assurances of good intentions on the part of the Minister of War (M. Millerand) and of Colonel Hirschauer, and no doubt the future will see something done. But while this delay is endangering the Service, Germany has formed a reserve by which, in time of war and for short annual periods in time of peace, civilian aviators give their services and lend their machines to the Government.

Some difficulty has been found by military aviators in protecting their machines from the kind attentions of enthusiastic crowds after making landings in places away from their own stations. The Ministry of War has now issued an order stating that neighbouring garrisons must mount adequate guards over all military aeroplanes landing in their districts. In the event of a descent being in a place far from troops the local gendarmerie must supply men for the same purpose.

Since Captain-aviator Félix took over the command of the Moroccan aviation section little flying has been done until the last few weeks. The work of organisation has prevented activity in any other direction. But in one day, November 9th, a distance of over 430 miles was covered by the Blériot pilots of the escadrille. Captain Félix (C.O.) travelled from Fez to Rabat (86 miles), as also did Quartermaster Feierstein. Lieutenant Do Hu went from Casablanca to Rabat (74 miles), and Quartermaster Perretti made a circuit of Casablanca-Mechna-Ben-Abbou and back (186 miles).

On November 21st an escadrille of six Deperdussin monoplanes (50-h.p. Gnome engine), flown by Lieutenant-aviators Broccard, Lalanne, Radisson, Dietrich, and Rochette, and Sergeant-aviator Verdier, left the military aviation centre at Reims at 1.30 p.m. in the drizzling rain and flew to Maubeuge,

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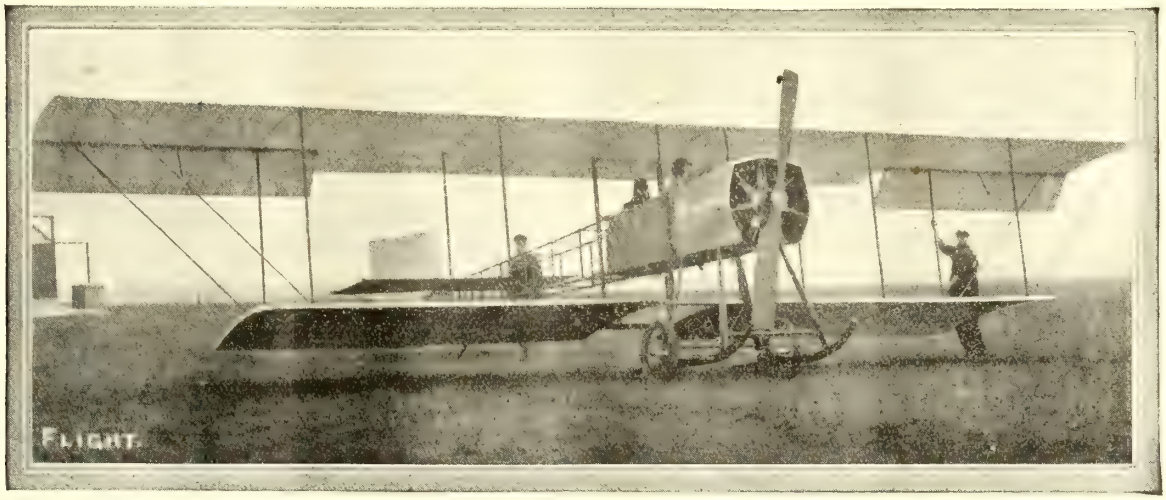
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where they landed at 3.30 p.m., having covered a distance of seventy-nine miles in unfavourable weather.

The French Navy has purchased a set of Sacconey man-lifting kites. They are to be placed on board the cruiser "Edgar Quinet" for experimentation. A naval lieutenant has been sent to the company's factory at Versailles to acquire knowledge of the manipulation of kites.

Quartermaster Jean Laurent was killed on November 21st at Etampes while flying with a passenger. Over-banking at a turn, his machine side-slipped and fell to the ground. He was seriously injured and died an hour or two later. His passenger was uninjured. He was born in 1891, and took his pilot's certificate at Pau on February 19th, 1912 (No. 739). He was of the 1st Artillery Regiment.—W.

GERMANY.

The dirigible balloon "Hansa" is expected to arrive at Potsdam in the course of a few days, and a hangar has been constructed to receive it. H.I.M. the German Emperor has undertaken to be present at the arrival of the dirigible, which will in future be posted at this place.

The Zeppelin dirigible balloon "L.1," which belongs to the German Navy, made several journeys over Berlin on November 21st with several naval and military officers of high rank as passengers. The "L.1" is preparing to make a long journey in the near future.

An officer-aviator named Von Winterfeld had a serious accident while flying a monoplane at Johannisthal on November 20th. He is not expected to recover.—W.

AUSTRIA-HUNGARY.

The Ministry of Marine, which ordered a Donnet-Leveque hydro-biplane (50-h.p. Gnome engine) some time ago, has placed an order for another biplane of the same make, but fitted with an 80-h.p. Gnome engine, and of similar type to that recently supplied to Great Britain.—W.

ITALY.

On November 21st combined manœuvres took place in the neighbourhood of Milan of cavalry, artillery, and the flying corps. One escadrille of twelve aeroplanes took part. H.R.H. the Count of Turin, accompanied by several officers of the United States Army, was present and followed the operations with deep interest.

The Ministry of Marine have taken delivery of two Paulhan-Curtiss two-seated hydro-biplanes, which are to be stationed at Venice. There are already at that place one two-seated and one single-seated Paulhan-Curtiss hydro-biplanes.—W.

RUSSIA.

A new school of military aviation is to be opened shortly at Taschkend. Eight officer-aviators are to be attached as instructors.—W.

PORTUGAL.

Apparently the Portuguese Government plans for a prospective air corps are being dealt with in true Iberian fashion, on the principle of never put off till to-morrow what will do just as well the day after. It now appears that the one or two machines they possess have been bought with the money collected by the "Directorio del Partido Republicano," which is the central organisation of the Republican Party, and has collected about £10,000 for aeroplanes. The party, however, refuses to spend any more of this money till the Government itself organises a proper flying school, and the Government says that it has no money for the purpose till the beginning of the next financial year, so that nothing further is likely to be done in Portugal until June next. Meantime, a Military Commission has been appointed to consider what shall be done then.

ROUMANIA.

The military aerodrome of Cotroceni has been closed and the aviators removed to Prince Bibesco's aerodrome, where a considerable amount of flying is carried out. Lieutenants Capsa and Zorileanu have both made flights at heights of over six thousand feet.—W.

BULGARIA.

The Council of State has granted a sum of £3,200 for the purchase of aeroplanes for the army. A Blériot monoplane has been purchased in France at a cost of £1,160, and a German Wright biplane in Germany at a cost of £960. Two Bristols have been purchased in Great Britain, and four officers are now at the Salisbury School that they may learn to fly. Most of the officers who are in future to form the military air corps are to go abroad for training. Several other aeroplanes are to be purchased shortly.—W.

GREECE.

M. Paris Papadopoulos accepted at Villacoublay, on November 21st, an 80-h.p. Gnome-engined two-seated Morane-Saulnier monoplane.—W.

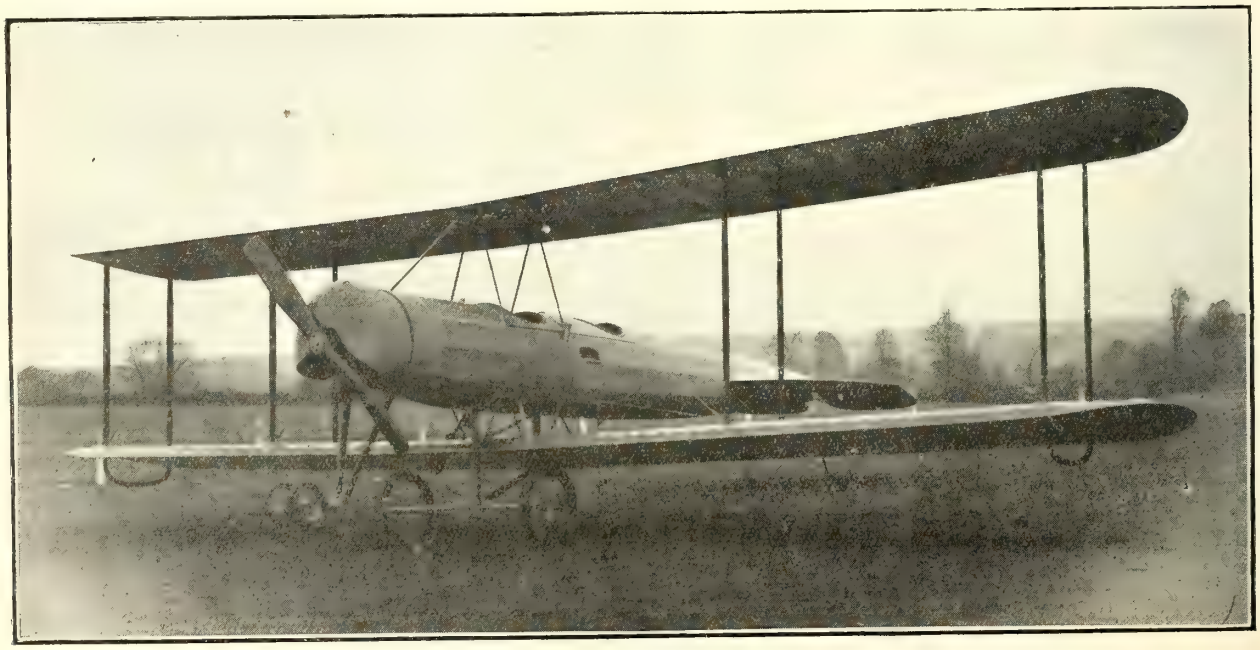
SIAM.

The Siamese Ministry of War has purchased a Bréguet biplane (70-h.p. Gnome), which has been put through its tests at Vélizy by M. Collardeau.—W.

JAPAN.

During the recent naval manœuvres, Kaneko, a Japanese naval officer-aviator, made several long flights on a Maurice Farman biplane over the fleet of over sixty ships. H.M. the Emperor was present and personally complimented the aviator. An extension of Japan's aerial navy is to be expected daily.

Lieutenants Sawada and Nasagawa, of the Imperial Army, are learning to fly at the Nieuport School at Villacoublay.—W.



Front view of the handsome new Bristol Biplane designed by Mr. Gordon England.

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The Navy and Aerial Defence.

On Thursday, 21st. inst., the following questions were put by Mr. Joynson-Hicks to the First Lord of the Admiralty :—

Aeroplanes.

Mr. Joynson-Hicks asked whether we have any airship equivalent in size and power to a Zeppelin or any airship capable of travelling at the rate of sixty miles an hour.

Mr. Churchill : No, sir.

Mr. Joynson-Hicks asked how many aeroplanes belonging to the Navy are capable of a speed of seventy miles per hour, and how many naval pilots can fly over sea or across country at the speed?

Mr. Churchill : It is not in the public interest to give the information asked for in the first part of the question. With regard to he second part, I am happy to say that we have many naval fliers who can fly over the sea or across country at speeds approaching seventy miles per hour and upwards.

Zeppelin Airship.

Mr. Joynson-Hicks asked the First Lord of the Admiralty whether he is aware that a Zeppelin airship passed over Sheerness on the night of October 14, and what inquiries he has made in reference thereto?

Mr. Churchill : I caused inquiries to be made and have ascertained that an unknown aircraft was heard over Sheerness about 7 p.m. on the evening of October 14. Flares were lighted at Eastchurch, but the aircraft did not make a landing. There is nothing in the evidence to indicate the nationality of the aircraft.

Here we find two important admissions, and two glaring quibbles such as are common among politicians, and are, apparently, a hobby of the present Ministry. We have the admission that we have no airship of the Zeppelin's class, which we all knew, though it has never been officially admitted, and we have the official admission that an airship was over Sheerness on the 14th. This will presumably settle those sceptics who regarded the recent agitation merely as a clever journalistic "story" on the part of The Aeroplane. Perhaps in future they will believe that this paper is only concerned with facts where our aerial defences are concerned.

Incidentally, one may remark that everyone seems to have assumed that the airship was the Zeppelin "L.1," which the Germans assert reached Johannisthal only three or four hours before the machine was over Sheerness. It should be noted that no statement as to its being the "L.1" every appeared in this paper. Those British papers which have correspondents all over the Continent would do well to make inquiries as to the movements of the German dirigibles on the French frontier. There are Zeppelins at Metz and at Cologne, both only 270 miles from Sheerness. Though none of these is of the very latest type, it is quite possible for one of them to cover the distance in about seven hours, trusting to a west wind to bring them back afterwards.

Count Zeppelin's disclaimer, published in the "Daily Mail," is backed by a letter received at this office from Dr. C. Abel-Musgrave, of Brighton, who writes on November 20 : "I have called the attention of Count Zeppelin to a cutting from The Aeroplane, of November 14, stating that one of his airships is supposed to have passed over England (Sheerness, Queenborough, etc.) in October last. To-day Count Zeppelin has sent me a wire denying that any of his ships has crossed over England, and that he cannot be made responsible for the incident."

One accepts Count Zeppelin's disclaimer freely, and with regret, for though a visit from one of "his ships," the property of the Zeppelin Company, would be a startling event, it would be a salutary lesson to this country, and it would be a pleasure to welcome the great and brave inventor to this country, whereas a clandestine visit at night from an airship which has ceased to be his property and belongs to the German Army, would be a breach of international amity.

As regards our not possessing a machine of similar class, it can be stated without much fear of contradiction that we have tried to purchase a Zeppelin, and failed, though we have offered several times the amount which the German Government pays. It is understood that the German price is £25,000 for each ship, so that one could have a whole fleet for the price of even a small cruiser.

Turning now to Mr. Churchill's quibbles, it is hard to see why "it is not in the public interest" to admit honestly that the Navy does not possess a single aeroplane capable of a speed of seventy miles an hour, for such is the case, and the sooner it is altered the better. It is just possible that the Nieuport, which Major Gerrard, R.M.L.I., used to fly, could touch 70 m.p.h., but it is unlikely, and, anyhow, this machine is getting old, and is probably too rotten with disuse to be reckoned a practical fighting unit. Apart from that it is doubtful whether the Navy possesses a machine which can exceed 70 m.p.h. in a calm.

The second quibble is on the matter of pilots. It is true that "many naval flyers can fly over the sea and across country at speeds approaching seventy miles per hour and upwards." Queer though Mr. Churchill's phrasing may be, his meaning is clear enough. Given a fifty mile an hour machine, flying with a wind varying from fifteen to twenty-five miles an hour, many of our naval fliers could fly across country at a speed of sixty-five to seventy-five miles an hour, but in landing they would turn head to wind and land at thirty-five to twenty-five miles an hour; and doubtless, if the worst came to the worst, some of them could even land down wind at full speed. But that is not the same thing as flying a seventy-mile-an-hour machine, which would land at about sixty miles an hour in a calm, and might have to land at ninety miles an hour or more, if compelled to land down wind owing to the lie of the land where it had to descend.

The fact remains that none of our naval pilots, except, perhaps, Major Gerrard, has ever flown a seventy-mile-an-hour machine.

Fortunately the care of aeronautics in the Navy is in singularly capable hands, and if left unfettered by time-serving party politicians at the Treasury they may be trusted implicitly to put our naval aviation on a thoroughly sound footing in the shortest possible time. But it is a pity that our real position should be screened by the terminological inexactitudes of sophisticated politicians.

A German paper on the Sheerness Incident.

The London correspondents of German newspapers have seized with avidity on the article of November 14th dealing with the believed visit of a Zeppelin to England. Without a single word of denial the statement is held up to cheap ridicule. The following is from a German mid-day paper :—"The fear of a visit of German airships is once again darting through the brain of phantastical English journalists. According to a private telegram, the vision of the ghostly airship that periodically undertakes bold flights in the columns of English papers has once again appeared in the last number of The Aeroplane. This time the paper states the vessel to have been seen on the British coast. The Aeroplane's informant actually states that the secret airship that appeared on the English south-east coast above the Sheerness war harbour in the night of October 14th was one of the Zeppelin airships. This ghost-seer continues that careful queries in Germany and elsewhere have elicited the fact that a Zeppelin was in air and heading for England during this night, and that persons able to differentiate between the noises of the various motors declare the sounds to be plainly recognisable as those characteristic of the German airships. The journal closes in saying that it were advisable for the Foreign Office to demand an explanation from the German Government."

So far the German paper, which adds a note that the "Daily News" even stated the vessel to be "L.1," which was recently purchased by the Germany Admiralty and carried out its 31-hour flight from Friedrichshafen to Johannisthal on October 13th and 14th.

Readers of the original article in question know that the notice was but the opening paragraph of a whole article, in the course of which it was declared that had the vessel not yet been taken over by the German Admiralty, the visit, should it really have taken place, would have to be ranked as a private one. This presumption is correct, inasmuch as the acceptance of the airship by the Marine Department took place only three days after the conclusion of the remarkable tour, which led from Friedrichshafen to Hamburg, Bremen, etc., before a landing was effected at Berlin-Johannisthal. Whether, however, the phantom aerial cruiser really was a Zeppelin is the question we are endeavouring to solve.—B.

A Novel Monoplane.

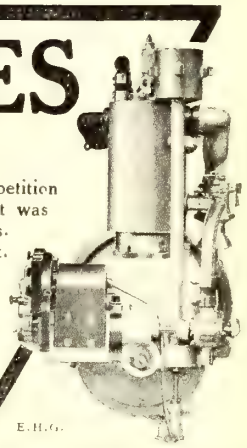
The new monoplane built by Messrs. A. V. Roe, and to the designs of Lieut. R. Burga, of the Peruvian Navy, has the following features. There is no wing warp, the stabilising device consisting of rudders above and below the body working in opposite directions. It also has various camber planes, and a device for altering the angle of incidence of the planes according to the speed desired. Mr. Simms at present has them set for highest speed.

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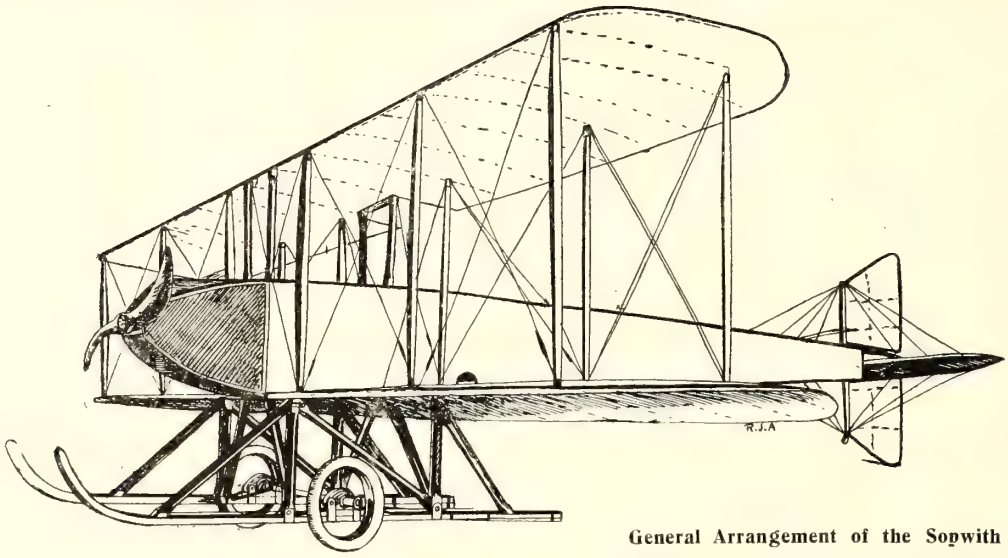
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Monoplanes and Biplanes. By Grover Cleveland Loening, B.Sc., A.M. Price, 12s. 6d.
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"THE AEROPLANE," 166, PICCADILLY.

The Sopwith Tractor Biplane.



General Arrangement of the Sopwith Biplane.

Readers of The Aeroplane are by now familiar with the name of the Sopwith tractor biplane. The general designs of the planes and tail are acknowledged to have been taken from the Wright machines, and a monoplane type of fuselage built to them. The undercarriage is also much like that of the Wright.

In the light of the above, it will be seen that the machine was originally just an interesting experiment, but it has turned out an unqualified success.

The most noticeable difference between the first machine of the type and the present edition is that the fuselage is now covered in for the whole of its length and that one pair of wheels only is fitted.

The machine does not aspire to speed honours, but as a guarantee of its approved safety and solidity may be taken the fact that the machine departed form Brooklands on Friday last, by way of the air, for Eastchurch, where it is to be used presumably for the training of fliers for the Naval wing of the R.F.C.

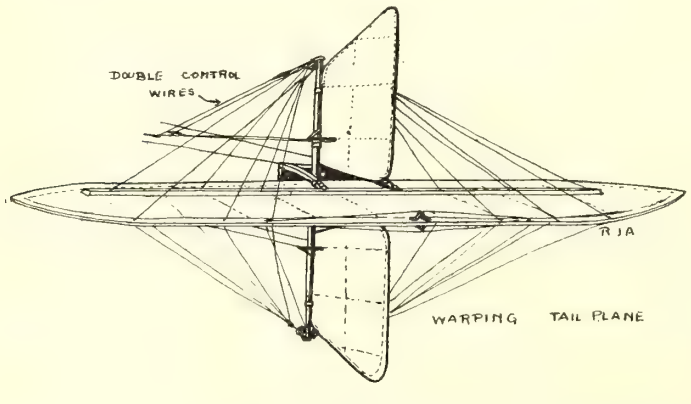
As has been said, the machine is not fast, the head resistance of the body and undercarriage being enough to pull her up considerably when the engine (a 70-h.p. Gnome) is switched off. However, there are many other desirable features. It is uncanny to watch the machine get off. It apparently strolls along the ground till the speed is about 38 miles an hour, and then gets up at an angle usually associated with Blériots. Some time since, Mr. Sopwith flew her over to Farnborough, and put her through her paces there for the edification of all who had eyes to see. With three up, the machine rolled all the way from Mr. Cody's shed to the Farnborough sheds, a performance of more than usual merit, as the ground there is not as smooth as it might be.

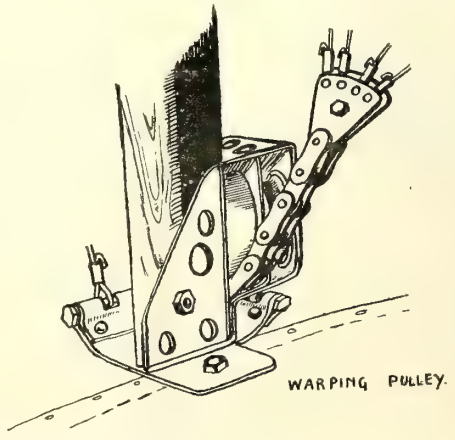
The climbing speed is 1,000 feet in 3 minutes—not bad going for a 52 m.p.h. machine. The gliding angle is splendid, though the machine picks up so little speed that it is impossible to start up the engine if it stops during a glide, even if her nose is put right down.

The fuselage is of square section, and measures 3 feet each way at the cockpit. The front is something like the Nieuport, the Gnome working under a cowl. Very little oil manages to escape, as the engine is well inside.

Seating accommodation is provided for pilot and two passengers, a load which the machine takes with ease. The passengers sit side by side, and the pilot is just behind them. The control is by wheel warping and rudder footbar. Backward or forward motion of the control pillar warps the tail in the usual Wright fashion. There are two rudders of about 7 square feet area in all, one above the tail plane and the other below it.

The landing gear is a very solid arrangement, and a very safe one for school work. The skids turn up well in front of the propeller, so that there is little fear of cracking that expensive affair. The wheels are 30 inches in diameter, with 4-in tyres, and run on a steel tube axle which is 8 feet 6 inches long, surely as broad a wheel track as could be desired. The axle is streamlined by a wooden strip clipped behind it. The suspension is by the usual rubber shock-absorbers. There is no tail-skid, the ends of the main skid





The warping elevator and the chain-pulley fittings for the main plane warp.

supporting the machine when at rest, and incidentally forming a pretty good land brake.

The construction throughout is most solid, and the metal-work very carefully thought out. In the warping clip illustrated it will be noticed that the load is taken from beneath the strut, and that the clip is formed of one piece of metal. All control wires are duplicated, and nothing has anywhere been left to chance.

The steadiness of the machine in a wind, and the readiness with which it answers the controls both in the air and on the ground, make it an ideal machine for school use, or for an intermediate step between the box-kite and the powerful and fast biplanes and monoplanes now in use.

The Sopwith Biplane's Good Flight.

An uncommonly good cross-country flight was done on Friday and Saturday last by Mr. Harry Hawker, the winner of the Michelin Duration Prize, in delivering to the Naval Wing of the Royal Flying Corps at Eastchurch a 70-h.p. Sopwith school-type tractor biplane. Leaving Brooklands at 11 a.m. on Friday with Mr. Cowper, another Australian, as passenger, and carrying about 24 gallons of petrol and oil, the machine got up to nearly 2,000 ft. in two circuits of the aerodrome, whence they flew over Croydon, making for Eastchurch, but shortly after passing Croydon they ran into a thick fog and lost sight not only of the ground, but of the sun.

The compass was useless, for, as Mr. Hawker told the writer afterwards, it simply went round and round with the engine like a revolution indicator. He endeavoured to keep as straight a course as possible at about 5,000 ft., but after flying for another half an hour or so, he thought it advisable to come down and find out where they were. At about 500 ft. Mr. Cowper, who was on the look out, saw the deck of a ship below them, and they thought that they had somehow got out over the sea, but a few minutes afterwards, at 200 feet, they saw the top of a tree without seeing the ground. By edging down carefully they discovered other trees; then, flying in circles, they made out the shape of a field, and landed in it, after circling round for 15 minutes or so, but so thick was the fog that, after they landed, they discovered a farmhouse only 200 yards away which they had not seen when actually flying over it.

As the fog continued all day they were unable to get away till the following morning, when they left at 10.30 a.m. in quite a nasty wind, and covered the 25 miles to Eastchurch in about half an hour. The machine was then handed over to the Naval authorities, and Mr. Hawker was back at Brooklands by 4 p.m., which was certainly eminently business-like on his part, as the average pilot would probably have treated himself to a day off on the strength of having got there at all.

The machine is bound to be a useful addition to the stock of naval machines, as it flies at well over 50 miles an hour, and yet gets off and lands at something very close to 30 miles an hour, so that it is eminently suitable for training work.

A New Sopwith Bat-Boat.

When at Brooklands recently the writer had the opportunity of examining in detail the parts for the new Sopwith biplane bat-boat, which should shortly be completed, and he has no hesitation in saying that the detail, design and workmanship are quite up to the highest standard yet produced in this country or elsewhere.

The spars and struts are hollow throughout the machine, and a novelty in the spar construction is that they are made in three strips, the centre section being ash and the outer sections spruce. After the materials for the spars had actually been made up it was discovered quite accidentally that the ash centre section was exactly the same size as the main spar of a Blériot monoplane, so that there cannot be much doubt about the strength of the stuff.

The minor ribs of the wings are being made of a white wood which has hitherto not been used in aeroplane construction, and was accidentally discovered by Mr. Sigrist when looking for other timber. On test this wood is quite as light as the American white wood generally used, but it has at least twice the strength, and is enormously flexible.

The boat body for this machine is being sewn by Saunders, of Cowes, which, of course, is a guarantee of the quality. The general design of the machine is entirely novel, and is likely to overcome many of the defects of the flying boats which have hitherto been produced.

Mr. Valentine in Kent.

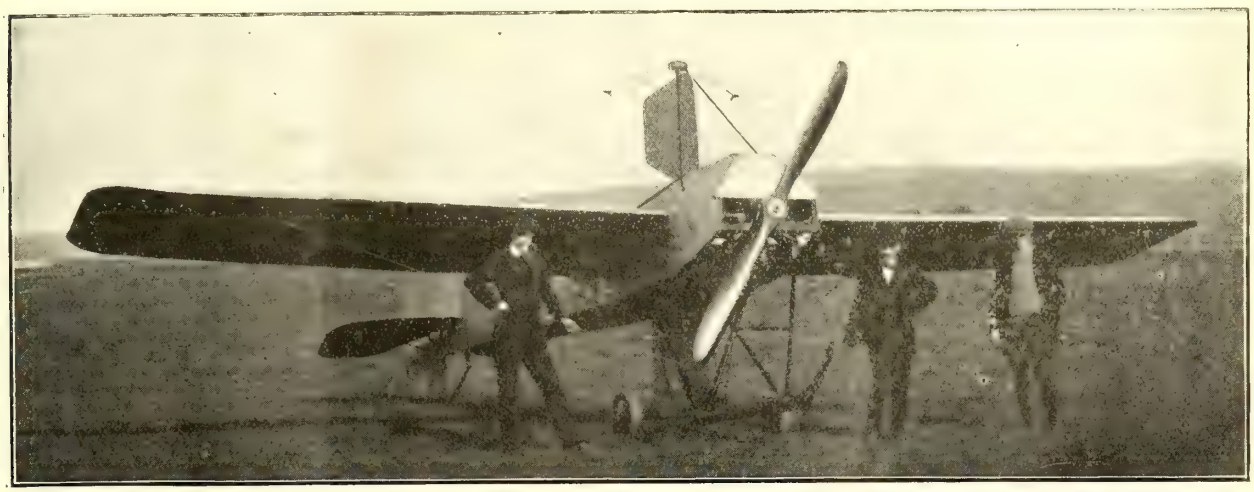
Mr. James Valentine has recently been testing a new type Vickers monoplane on the firm's testing ground at Erith, and although the machine was quite new and untuned, he made a most satisfactory flight on it. Afterwards he told the writer that the machine climbed particularly well, and that after a little adjustment it seemed likely to be a very fine flier.

Mr. O. C. Morison's Marriage.

On Tuesday last, Mr. O. C. Morison was married at Brighton to Margaret, daughter of Mr. and Mrs. Howard G. Cleaver, of Shoreham. Mr. Morison's many friends will wish him and his bride long life, prosperity, and happiness.

It is interesting to hear that Mr. Morison intends to take to flying again in the near future, and one gathers that a hydro-aeroplane is being built for him. Mr. Morison is one of the men who has done most to show people in this country what an aeroplane can really do, for his great cross-country flights in the early days when cross-country flying was almost unknown stamped him as an aviator of exceptional ability, and though one used to chaff him about his capacity for smashing machines, it was really a compliment to his pluck, because whenever he did smash a machine it was in the course of a flight which very few other men would have attempted.

He has taken much bigger risks than most pilots, so that he has well deserved the rest from flying which he has taken during the past twelve months or so. Let us hope that his new responsibilities will prevent him from taking uncalled-for risks, and that his future career as an aviator may be as pleasant as his married life.



The Burga monoplane built by A. V. Roe and Co., to the designs of Lieut. Burga of the Peruvian Navy.

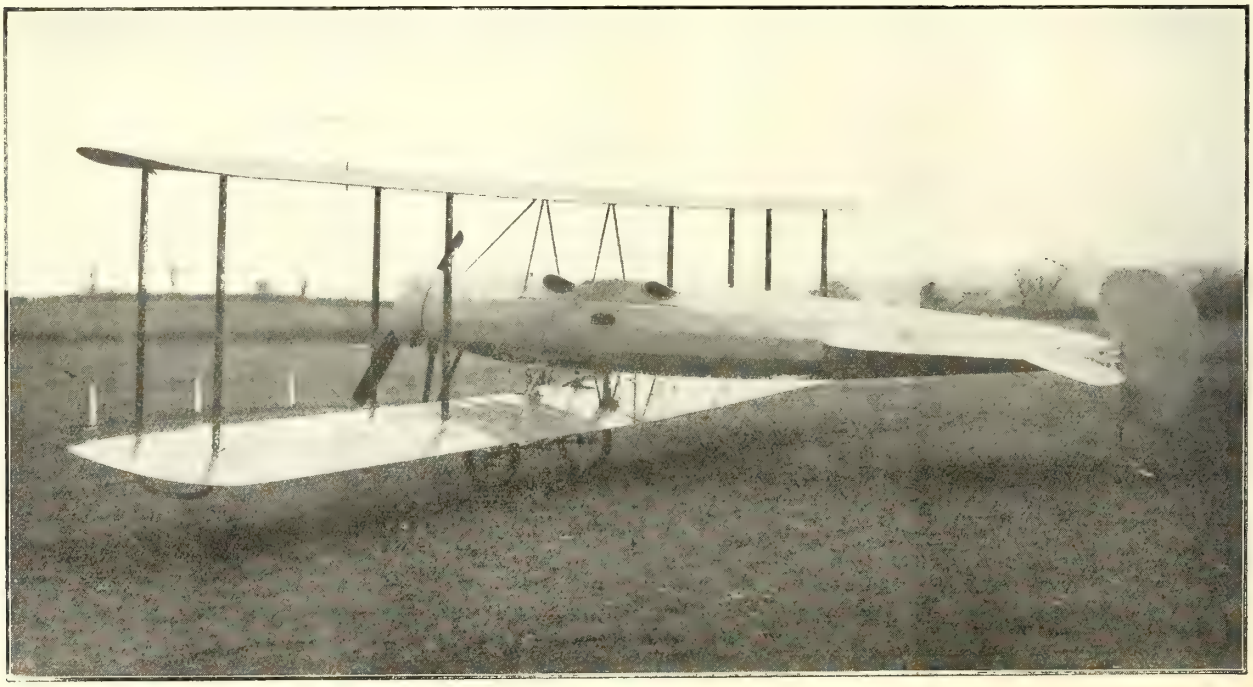
Sir George White, Bart., on Naval and Military Aviation

The Bristol and West of England Aero Club held their annual dinner on the 21st inst. Sir George White, Bart., the President of the Club, being in the chair. After the usual loyal toast, Mr. Herbert Thomas proposed the toast of the Navy, Army, and Imperial Forces, and said that though we have the men for home defence, it is doubtful whether we have the equipment. Lieut. G. W. Phillips, in reply, said that more aeroplanes were required for scouting, and he hoped they would come from Bristol. The Lord Mayor proposed the toast of the Club, and Mr. S. Weston Stevens replied. Mr. Alan McArthur proposed the health of the President, and paid tribute to the great work he had done.

Sir George White, in replying, said that before many years aeroplanes would form part of the transport of the members of the community, and would also play an important part in the development of the commerce of this country. Continuing, Sir George said: "And now in an assembly of Bristol men no doubt you would be interested in learning something of the progress of the Bristol Company. We only started about two years ago, and during the past twelve months have made great strides, though I have to say it is mostly abroad. Early in the history of our company I went to the War Office authorities and told them frankly that whilst I had started the company as a commercial undertaking, which I believed would be a great success, yet I was also impelled by a patriotic desire to see that England should not lag behind, and therefore if the British and Colonial authorities would supply us with orders in sufficient quantities we would undertake not to build for any foreign Powers. The answer I got was that they were buying foreign machines, and should continue to do so whenever they thought proper, and that we were equally at liberty to supply any country who would take our manufactures. We then naturally turned our attention to these other countries, with the result that a number of foreign Powers have been only too glad to avail themselves of Bristol manufactures. Amongst them I may mention Russia, Germany, Italy, Turkey, Bulgaria, Roumania, and Spain. Moreover, in the case of Germany, we were cordially invited to start a factory there, and we have therefore built and equipped both factory and school in Germany. The Italian Government sent a Commission abroad to determine the machine they would adopt, not only for their own War Office, but also to enable them to advise the National Patriotic Fund as to the machines to be selected for purchase with the funds raised by national subscription. As the result of their investigation, and by the experience which they had had of the 'Bristols' in the war with Turkey, the Italian War Office declared the 'Bristol' monoplane the best for military purposes, so the National Committee and War Office initial orders for 'Bristols' will run into between 50 and 60.

"We have been pressed by the Russian military authorities to start a factory in Russia, with promises of large orders if we do so, and the matter is now receiving consideration. In Roumania we recently demonstrated at the military manœuvres with such success that we have already received opening orders for ten 'Bristol' monoplanes. During the past twelve months we have turned out at Filton about £70,000 worth of machines, of which the British Government has contributed £8,000 only, whilst the orders for other countries for 'Bristols' still unexecuted would probably total ten times the amount of work we have in hand for our own Government. In fact, our foreign orders are so encouraging that we are increasing our works by again nearly doubling the size of the factory, in order to cope with the work. Not only do foreign Powers buy 'Bristols,' but they send their officers to Bristol for tuition. We have already taught German, Bulgarian, Chinese, Italian, Turkish, and Spanish officers, and at this moment there are half a dozen Roumanian officers at our schools on Salisbury Plain learning to fly the monoplane, whilst on the 1st of next month no fewer than 20 Italian officers arrive for the same purpose. During the past twelve months we have turned out 108 certificated aviators from our schools, of whom 87 are Army and Navy officers, or more pilots than every other school, including Government establishments put together. It is true that at the military trials we were awarded £1,000 in prizes, and the authorities purchased our two machines for £2,000. Again, the War Office has recently entrusted us with the building of four machines of their own design, whilst the Admiralty have now come to us with orders, and, in addition, the Australian Government has given us their order, so that I hope during the ensuing year we may see a quickening of interest on the part of our English and Colonial authorities, who up to the present are distinctly behind the large Powers and many of the smaller ones.

"We believe during the next five years the Powers will call for thousands, if not tens of thousands, of aeroplanes, and the developments in their use for both military and naval purposes will have a far-reaching effect upon the future of warfare, though in my opinion the possession of a strong fleet of aeroplanes by any country will, just as it is with a strong navy, be a dominating influence for peace. Bristol has every reason to be proud of the prominent place in the world of aviation which she has already secured, and it is the intention of the Bristol Company to maintain and enhance it."



Back view of the new Bristol Biplane, ordered by a foreign Power, but not by the Royal Flying Corps.

The Number Needed.

The following letter has been received by the editor :—

" Sir,—In Mr. Whittaker's most interesting article in the current number it is stated that the Expeditionary Force amounts to 167,000 men. The F.S. Pocket-Book, 1911, states the Force to amount to 132,167 men, with 1,265 officers. It is made up of six divisions, a cavalry division, and two mounted brigades. There are 30,000 or 40,000 Regulars who are not included in the above, and are known as unallotted troops, who will probably stay behind to provide a backbone for the 'Home Defence Army.' I do not think they are meant to be reckoned with as belonging to the E.F.

" Again, farther on in the article, Mr. Whittaker alludes to an 'Infantry Division.' Such a thing is not known now in the Army. They are known simply as Divisions. A Cavalry Division is known as such, but not a unit made up of four brigades with necessary Artillery, etc. Scrutator."

" Scrutator " has evidently arrived at the figures in his letter by adding together the figures given for six divisions, one Cavalry division, two mounted brigades, and various details. He has, however, obviously omitted certain large bodies of men which are essential to the organisation of a modern field force.

As it would occupy too much space to give the figures in the detail in which they are laid down in the F.S. Pocket-Book I will give them briefly, dividing up the different arms of the Service. The figures are approximate :—

Infantry	84,000,	all ranks
Cavalry	9,000	,, ,,
Mounted Infantry	4,000	,, ,,
Artillery	32,000	,, ,,
Engineers	7,500	,, ,,
Army Medical Corps	9,500	,, ,,
Army Service Corps	16,000	,, ,,
Other Services and H.Q. ...	5,000	,, ,,
	167,000	

He corrects me in the use of the term "Infantry Division," but he surely cannot imagine that I am unaware of the fact that the official term is simply " Division." When one is writing very largely for civilian readers it is customary to make one's descriptions as explanatory as possible, and if he will read certain well-known text-books on organisation, such as, for instance, that by Colonel Hubert Foster, R.E., he will find that officer makes use of the term "Infantry Division" on frequent occasions; yet that book was published in the spring of this year. The use of such terms is purely for the sake of simplicity.

I am quite unable to understand his reference to a Cavalry Division. Such experience as I have had and such official books as I have at hand tell me that a " Cavalry Division" is invariably one of four brigades in the modern British Service, and that it is customary to find a certain proportion of Horse Artillery attached.

If " Scrutator " wishes it, I will supply him with detailed figures of the Expeditionary Force.—W. E. de B. W.

The New Bristol Tractor Biplane.

The accompanying photographs show the new Bristol biplane designed by Mr. E. C. Gordon England, whose first flights on it were duly notified in the last issue of " Week's Work." The machine has a span of 40 ft., a chord of 5 ft. 1 in., a gap of 6 ft. 6½ in., and an over-all length of 26 ft. The weight with an 80-h.p. Gnome engine is 1,096 lbs. empty, the tanks being of a size to carry petrol for three hours.

The oil-tank and the gravity petrol-tank are on the top of the fuselage, one in front of the passenger and one in front of the pilot, and the supplementary pressure tanks are on each side of the fuselage. The pressure in these tanks is kept up by a small pump fixed on the central mast below the fuselage and driven by a wind propeller fitted in the slip stream of the tractor.

A neat refinement in the machine is that, aft of the main engine cowl, which is held down by two nuts, there is a secondary bonnet fixed in the same way as those on motor-cars, and on raising this bonnet free access is obtained to the magneto, carburetter, and so forth.

It will be noticed that above the fuselage is a tubular *cabane*, and that the upper planes are attached to this. The lower planes also meet at a central point, so that the wings detach bodily from the fuselage and chassis, and on folding down the *cabane* the whole machine will go into a case only the height of the fuselage. The chassis is of the type invented some time ago by Mr. England and illustrated in this paper some months ago. This chassis has proved itself reliable under the worst circumstances. The tail skid is steerable in conjunction with the rudder. The fuselage itself is of square section with streamline formers round it. The control is by means of a central lever, with pedals for the rudder.

The speed of the machine is approximately 65 m.p.h., yet it lands very slowly, and its solidity is shown by the fact that, in the course of its first test flight, the engine ceased firing, so that Mr England was compelled to land in a very soft ploughed field, with the result that the machine stopped in its own length without doing itself the slightest damage. The machine has an exceedingly good gliding angle.

Mr. England is to be congratulated on the production of so handsome and so effective a machine. It certainly seems to compare well with the best yet produced in this country.

His many friends will be surprised to hear that Mr. England resigned his position with the Bristol Co. soon after putting the first of these machines through its first preliminary test. It may be well to point out that he has left the firm on most friendly terms, and will probably continue to fly machines of this type for them when occasion demands. He is at present taking a holiday, after nearly two years' very strenuous work in the firm's service, and the ability he has shown both as a pilot and as a designer assure that we shall hear of him in an occupation worthy of his merits before very long.



Mr. Vincent Taylor (" Capt. Penfold "), on left, and Mr. Collyns Pizey, on the side-by-side Bristol Monoplane.

Rules or the Monaco Waterplane Meeting.

From the 2nd to the 14th of April, 1913, the International Sporting Club of Monaco will hold an international hydro-aeroplane meeting, which will consist of two parts. First, eliminatory trials to satisfy the committee that competitors are fit to start in the races, and second, two races in which the classification will be made by adding the times in each race.

The following are the essential rules :—

(I) Machines must start from the water, and land thereon, solely by means carried on board.

(II) The machines must have on board during both the eliminatories and the races—(A) two persons, including the pilot, with sufficient seating accommodation. The weight of the passenger is fixed at 70 kilos (160 lbs.), but may if desired be made up by ballast. Where the pilot replaces his passenger by ballast, the 70 kilos must be placed on the seat which the passenger should occupy. The pilot must declare at the start whether he will compete with a passenger or with ballast, and no change may be made afterwards under pain of disqualification. (B) The following marine apparatus—an anchor of at least 7 kilos (16 lbs.), 30 metres (100 ft.) of chain, cable, or rope by which the anchor can be hoisted, one buoy fixed to the cable to which one can anchor the machine in the sea. (C) A compass and a registering barograph. (D) A wireless outfit or in its place a case weighing 25 kilos (56 lbs.) being at least in each dimension 27 centimetres (11 in.) long, 27 centimetres wide, and 63 centimetres (26 in.) high. This machine must be placed so that it can be operated by the passenger.

The Programme.

Entries with the entry fee of 500 francs per machine, which is returnable to all starters, must be received by the International Sporting Club of Monaco before midnight on the 28th February, 1912, and entries should specify the name of the pilot, the number of his licence, and the make of the machine.

An exhibition of the machines properly entered will open on April 3rd. The machines will be exhibited on the water, and they must remain on the water inside of the Port of Monaco during the period of the competition, except if brought ashore for repairs.

The Eliminatories.

The eliminatory trials will commence on April 4th, and will continue to the 11th, from 9 a.m. to mid-day and from 3 to 6 p.m.

The contests will be as follows :—

(1) Starting.—The machine must be stationary on the water with motor stopped. The pilot must, with the help of his passenger only, start the motor without touching the propeller and run along about 100 metres between two lines of buoys.

(2) Altitude.—Start from the surface of the water, rise to 500 metres and return to the water in less than 30 minutes.

(3) Glide.—Start from the water, reach at least 100 metres, and return to the water with the motor stopped.

(4) Hoisting.—The machine must be placed by the competitor under a derrick and suspended to this derrick in such a way that it can be lifted from the water and return thereto.

(5) Towing.—The machine must be taken in tow, in charge of the competitor, by a boat, either rowed or with a motor, and towed over the same course as used in the starting test.

(6) Navigability.—The machine must cover, without quitting the water, by means of the motor only, one lap of the track used by the motor-boats (6¼ kilometres—4 miles—about).

All the eliminatory trials except the hoisting will take place in unsheltered water outside the Port of Monaco.

Repairs may be made, but one machine may not be replaced by another. A pilot may change his machine provided he continues to fly for the same maker a machine qualified in the eliminatories, or may finish a series of contests begun by another pilot. It is the machine alone which must pass all the tests to be qualified for the races. No change will be permitted during the races, for in these the same pilot must handle the same machine.

The Races for the Grand Prix de Monaco.

There will be no classification in the eliminatory trials, but only machines passing all these tests will be allowed to compete in the races for the Grand Prix, which will take place on two days.

First day—an out-and-home race, Monaco, San Remo, Monte Carlo, Beaulieu, Monaco, with landings at San Remo and Beaulieu. Distance about 80 kilometres (50 miles). Times of the landings will not be clocked. Competitors have simply to touch the water before reaching one line of buoys, and proceed without quitting the water to a second line of buoys, after which they can go on flying.

The control will remain open for five hours for each competitor.

The second day the race is to be in the Bay of Monaco round a circuit of 10 kilometres (6 miles). Only competitors who have finished the full course on the first day will be eligible. Competitors will start in the order of their classification on the times of the previous day, and separated by the interval of time which separated them on the previous day, so that the order and interval of finishing on the second day will be the order and interval of the final classification. The distance of the second day's race will be 500 kilometres (310 miles), which the competitor must cover under the following conditions :—

(1) To come down twice on the water at fixed points. The first time after covering 50 kilometres, and the second time before the last lap, at the wish of the competitor. These stops consist of alighting inside a quadrilateral of buoys, where the competitor must start again after having done a turn round one of the buoys.

(2) Throughout the whole flight no supplies of petrol and oil may be taken on board. The competitor must not touch anything, either boat or quay, between the start and finish of the contest, though the competitor will have the right to moor in the sea outside the Port by means of the apparatus on board, on condition that it is taken on board before starting again.

The control will remain open for 12 hours after the start of the first competitor.

If all the competitors finish the 500 kilometres the classification will be according to the best total time of the two days' racing. If several competitors accomplish both tests they will be classified according to the total times, and the other competitors according to the number of laps of the course finished by them on the second day. No account will be taken of fractions of the course. In case of equality in the number of laps, classification will be made according to time. If none completes the whole course classification will be according to the number of laps as above. No competitor who has not finished the first day's course will be allowed to start in the second.

The following are the prizes :—1st, 25,000 francs; 2nd, 10,000 francs; 3rd, 7,000 francs; 4th, 5,000 francs; 5th, 3,000 francs.

The following are the dates to be noted :—

February 28th, midnight, closing of entries.

April 2nd, 6 p.m., closing of reception of machines at the exhibition.

April 3rd, midday, closing of the nominations of pilots.

April 3rd, exhibition on the water.

April 4th to 11th, 9 a.m. to midday and 3 p.m. to p.m. eliminatory trials.

April 12th, first day of the Grand Prix.

April 14th, second day of the Grand Prix.

Handley Page Successes.

The success attending the debut of the 50-h.p. Handley Page monoplane has been followed by equally great success with the new 70-h.p. monoplane, some 25 passengers having been taken up on this machine during the last two week-ends.

On Sunday a trip was made from Hendon to Brooklands and back with Mr. Trevor Handley as passenger. Over Sunbury the petrol pipe became choked, and the engine stopped. The machine, however, planed down splendidly from over 2,000 feet, alighting in a ploughed field which was very soft, the wheels sinking in up to the hubs. After putting the petrol arrangements right, a fresh start was made, and the machine was flown straight to Brooklands, thence returning to Hendon. The times were 17½ minutes going and 23 minutes coming back.

An unofficial test was made of the climbing powers of the machine with two passengers up, and two hours' oil. The propeller was not suited to the engine, but nevertheless the climbing speed was 200 feet a minute. Altogether on Sunday about 150 miles were flown without any special incident happening. The landing and rising from the soft ploughed field seemed but little different from the ordinary landing in an aerodrome; this little occurrence showing how wonderfully well the chassis is suited for cross-country work.

The Week's Work.

MONDAY, November 18th.

R. F. C. (Central Flying School).—Fine, clear and calm, moderate north-westerly wind later in day. Plenty of excellent work, at times seven machines in air at once. On Avro 406, Capt. Fulton, R.F.A. (twice) five mins.; Lieut. Hubbard (three times) 15 mins.; Lieut. Martyn 15, 10 and 5 mins.; Lieut. Young 15, 10 and 5 mins.; Capt. Salmond (twice) 10 mins. On Avro 404, Petty Officer Andrews, R.N., practising figures of eight 15 mins. and then going for R.Ae.C. certificate, observed by Capt. Fulton and Lieut. Hubbard, took it in excellent style, his time of flying being about 30 mins.; Capt. Fulton with Leading Seaman Bateman on practice ground 35 mins. On Maurice Farman 403, Lieut. Abercromby 13 mins.; Major Ashmore 18 mins; Lieut. Winfield Smith 20 mins.; Lieut. Williams-Freeman 10 mins.; Major Trenchard 15 mins. On Maurice Farman 415, Lieut. Cholmondeley with passenger 10 mins.; Lieut. Longmore, R.N., 9 mins.; Lieut. Williams-Freeman 50 mins.; Lieut. Courtney 60 mins. On Short tractor 413, Capt. Risk 4 and 20 mins.; Lieut. Shepherd 10, 5, 8, 3, 5 and 6 mins. alone and with Air Mechanic Copper 5 mins. On Short biplane 401, Capt. Risk with Ldg. Seaman Brady 18 and 15 mins., with Gunner Allen 10 mins.; Lieut. Pepper 10 mins.; Lieut. Allen 10 mins.; Lieut. Atkinson 14 mins.; Lieut Shepherd 4 mins.; Lieut. Hartree with Capt. O'Niell 19 mins.; Lieut. Lushington, R.M.A., 9 mins.; Major Gerrard, R.M.L.I., with Ldg. Seaman Prickett 9, 18, 4, and 14 mins. On Henry Farman 412, Major Gerrard 3 mins. alone, with Chief Mechanic Scott 6 mins., with Lieut. Shepherd 6 and 15 mins., with Lieut. Lushington 8 and 9 mins., with Lieut. Smith-Barry 11 mins.; Lieut. Longmore (twice) 4 mins. Mr. Pizey came over from Lark Hill on a Bristol monoplane, carrying a passenger, a Roumanian officer, and returned after about half an hour's stay.

R.F.C. (Lark Hill).—Capt. Fox out on 203 biplane for two hours' flight from Lark Hill to Shoreham and back again to the Clarendon Institute, with Lieut. Ashton as passenger, distance 110 miles, best height 4,300 feet Heavy rain.

Hendon.—W. H. Ewen School pupils out 11 a.m. under M. Baumann, Mr. L. Russell straights at 30 feet on mono. No. 2, Lieut. M. W. Noel hopping. In afternoon pupils were again out. Mr. L. Russell and Mr. H. Gist straights and half circuits. Lieut. M. W. Noel straights. Messrs. R. S. McGregor and E. T. Prosser rolling on No. 1 mono. Mr. Sydney Pickles on 35-h.p. Caudron. Lieut. McMullen and Mr. Lawford straights and half circuits with nice landings. M. Baumann then put up good exhibition on same machine, at several hundred feet, for 15 minutes, finishing with fine glide. Mr. Sydney Pickles fine flights on 60-h.p. Caudron.

Grahame-White School started in calm at 12.40 p.m. under Mr. Manton, Major Madocks straights with instructor on No. 7 Grahame-White biplane. Mr. Power 10 minutes rolling with instructor. At 2.30 Lieut. Birch straights on No. 7 under Chief Pilot Noel. Major Madocks straights alone on same machine. At 3.15 Mr. Ian Davis rolling on B.4. Exhibition flights by Instructor Manton on No. 7 and Chief Pilot Louis Noel on 80-h.p. Farman, carrying passengers.

At Deperdussin School.—Lieuts. Mapplebeck and Hooper and Mr. Whitehouse out on brevet No. 3 machine, most of landings showing excellent judgment.

At Blackburn School.—Dr. Christie half an hour practising straight flights. School out at 8.0 a.m. in charge of Mr. H. Blackburn, who made test flight of five minutes. Messrs Lawrence Spink and Buss 15 mins. each.

Brooklands.—At Vickers School, Mr. Knight in morning on Farman giving instruction to Mr. Polluk, getting along well, then Mr. Corballis for good circuits on same machine. In afternoon Mr. Knight, Mr. Corballis and Mr. Polluk all out on Farman, putting in useful work. Mr. Knight on No. 5 for test, then handed over to Capt. Stott, who did first part of brevet test very well. Mr. Knight then for test on No. 3 and handed over to Mr. Babbington who did good rolling and long hops. Later Mr. Knight, Mr. Corballis and Mr. Polluk all out on Farman, doing well.

At Ducrocq School.—In morning Mr. Jack Alcock circuits and figures of eight. Mr. McAndrew good straights and half turns, showing great promise, although only up for first time with Mr. Ducrocq on previous Friday. Mr. Ducrocq circuits and across country, landing with propellor stopped after a long glide. In evening Mr. Alcock passed first test for brevet but too dark to finish.

At Bristol School.—Mr. Bendall in afternoon taking Mr. Ewing, Lieut. Mills and Mr. Loyd. Mr. Merriam taking Mr. Featherstone. Lieut. Empson alone.

Salisbury Plain (Bristol School).—Mr. Pizey with Roumanian Lieuts. Negrescu, Chiscaneanu and Parvelescu on mono. Mr. England with Lieut. Negrescu. Mr. Sippe giving tuition to Lieuts. Parvelescu and Chiseaneanu in tandem mono.

In afternoon Mr. Pizey with Lieut. Parvelescu flew to Upavon with a parcel. Prince Cantacuzene up alone. Mr. England giving tuition to Lieuts. Parvelescu, Negrescu, Chiscaneanu. Mr. Sippe with same pupils.

Liverpool (Waterloo).—Mr. Melly took out "Y" machine to correct balance which was slightly out. After doing figure eight in strong breeze, and finding all satisfactory, he handed over to Mr. Birch who made a couple of figures of eight.

TUESDAY, November 19th.

R.F.C. (Central Flying School).—Dull, fresh, north-westerly wind, bumpy. Wind very strong later. On Avro 404 Captain Salmond 10 mins., Lieut. Hubbard 15 and 10 mins., Lieut. Young 5 mins., Air-Mechanic Higginbottom 5 mins., Lieut. Martyn 10 mins. On Maurice Farman 403, Lieut. Courtney 13 mins., Major Ashmore 12 mins., Lieut. Smith-Barry 18 mins., this an excellent flight at 2,500 feet, ending with a fine spiral; Lieut. Williams-Freeman 12 mins., Lieut. Winfield-Smith 17 mins. On Maurice Farman 415, Lieut. Stopford 8 mins. On Short biplane 401, Major Gerrard, R.M.L.I., with Leading-Seaman Prickett 16 mins., Lieut. Lushington, R.M.A., 10, 12 and 11 mins., Capt. Risk with Leading-Seaman Brady 13, 4 and 12 mins. On Henry Farman 412, Major Gerrard 6 mins., Lieut. Shepherd 6 mins.

R.F.C. (Larkhill).—Capt. Fox out on 203 for 20 mins., reaching 1,500 feet, and flying round Salisbury.

Hendon.—W. H. Ewen School pupils out at 9.45 a.m. Messrs. Zubiaga, Prosser, and Cowling excellent practice No. 1 mono. After lunch Messrs. Zubiaga, Prosser, and McGregor again out on No. 1 monoplane under M. Baumann.

At Grahame-White School.—Lieut. R. G. D. Small with Instructor Manton straights on No. 7, Lieut. Birch straights on same; 2.15 Mr. Power on No. 7 rolling, with Chief Pilot Noel and afterwards alone.

At Deperdussin School.—Mr. Scott (new pupil) started out on Taxi 2, and handled machine very well, but wind very choppy, and stopped further practice.

At Bleriot School.—Lieut. A. Loftus Bryan, of Enniscorthy, County Wexford, joined school, had preliminary instruction, and later on L.B.1 for rolling practice. M. R. Desoutter also had first lesson, both making very good start.

At Blackburn School.—Out with brevet machine, Mr. H. Blackburn doing a short test flight and Mr. Buss 15 mins.

Brooklands.—At Ducrocq School, in morning, Mr. Alcock finished brevet test in good style, landing on the mark. Mr. Ducrocq doing circuits and Mr. McAndrew straights.

At Vickers School.—Mr. Corballis good figures of eight, Mr. Polluk straights, Mr. Soames good flight on No. 5 finding it a little bumpy; Mr. Babbington straights and curves on No. 3, handling machine perfectly on second attempt.

At Percival School, Mr. Muller on Caudron first time, rolling.

At Bristol School.—Mr. Merriam with Mr. Featherstone, Lieut. Mills and Mr. Ewing. Mr. Bendall with Messrs. Featherstone and Loyd.

Salisbury Plain.—At Bristol School.—Mr. England with Lieuts. Negrescu, Parvelescu, and Chiscaneanu. Mr. Pizey for trial of biplane, and afterwards with Lieut. Chiscaneanu, Major Macree, and Lieuts. Parvelescu and Negrescu. Lieut. Negrescu for his first time alone, flying well and landing neatly. Prince Cantacuzene passed for his certificate in fine style, observed by Capt. Dickson and Capt. Connor, R.F.C.

WEDNESDAY, November 20th.

R.F.C. (Central Flying School).—Dull, very strong and bumpy northerly wind. Some rain at times. On Maurice-Farman 403, Lieut. Cholmondeley 12 mins. alone, with Lieut. Pepper 8 mins.; Lieut. Abercromby 15 mins., Major Ashmore 17 mins. over Bulford, Lieut. Williams-Freeman 15 mins. On Short biplane 401, Major Gerrard, R.M.L.I., with Leading Seaman Brady 7 mins, Lieut. Lushington, R.M.A., 14 mins.

R.F.C. (Larkhill).—Capt. Fox for 30 mins. on 203.

Brooklands.—At Bristol School.—Mr. Merriam, after trial, decided weather too rough.

THURSDAY, November 21st.

R.F.C. (Central Flying School).—Rather dull, light north-westerly wind, slight rain. On Avro 404, Capt. Salmond 5 mins., Lieut. Martyn 10 and 8 mins., Lieut. Abercromby 7 and 5

mins., Lieut. Young 6 and 10 mins., Capt. Fulton, R.F.A., with Lieut. Winfield Smith 18 mins. Air-Mechanic Higginbottom 5 mins. On Maurice Farman 403, Lieut. Pepper 8 mins., Lieut. Hartree 8 and 20 mins., Lieut. Longmore, R.N., with Lieut. Allen 5 mins., Lieut. Allen 13 mins., Major Ashmore 20 mins. and 15 mins., Major Trenchard 15 mins. On Maurice Farman 415, Lieut. Longmore with a passenger 20 mins. Lieut. Cholmondeley arrived from Farnborough on another new Maurice Farman biplane 418, his flying time being about 70 mins.; Lieut. Longmore 7 mins. on this machine. On Short tractor 413 Major Gerrard, R.M.L.I., 7 mins. alone, with Lieut. Hubbard 15 mins.; Lieut. Shepherd 7 mins., Capt. Risk 12 mins. On Short biplane 401 Lieut. Lushington, R.M.A., 21 mins., Capt. Risk with Leading-Seaman Brady 7 and 3 mins. On Henry Farman 412 Major Gerrard 8 mins. alone, with Lieut. Smith-Barry 10 mins.

R.F.C. (Larkhill).—Major Higgins on 203 twice, after which Capt. Fox took over machine for a few minutes. Mr. Percival made splendid flight on Dunne biplane, reaching 1,000 feet, and coming down with a fine glide, after which he took up a passenger.

Hendon.—W. H. Ewen School pupils out at 7.30 a.m. M. Baumann busy with pupils on monoplanes Nos. 1 and 2. Lieut. M. W. Noel and Mr. L. Russell good straights on mono. No. 2 and Messrs. M. Zubiaga, R. S. McGregor, E. T. Prosser and Cowling rolling and hopping on No. 1 mono. Mr. Sydney Pickles also busy with 35 Caudron; Mr. Warren several excellent straights. Mr. L. Russell also promoted to Caudron. After exhibition by M. Baumann on same machine, Mr. Sydney Pickles went for cross-country flight. At 3,000 feet he switched off over Welsh Harp, easily reaching the aerodrome in one long glide. During afternoon again out on 35-h.p. Caudron, and after test flight handed over to Messrs. Lawford and Russell, who each made twelve straight flights. Mr. W. Warren also made several good straights on same machine. M. Baumann also busy with monoplanes. Lieut. M. W. Noel and Mr. H. Gist flying well on No. 2 mono, Messrs. M. Zubiaga, R. S. McGregor, E. T. Prosser and N. E. Cowling all doing well on No. 1 mono. Mr. Sydney Pickles on 60-h.p. Caudron.

At Grahame-White School.—Lieut. Birch good practice on No. 7 under Instructor Manton, doing excellent circuits. Major Madocks straights with Mr. Noel, and later alone. Lieut. R. G. D. Small straights on No. 7 with Mr. Manton. Major Madocks again out on No. 7 doing straights.

At Deperdussin School.—Lieuts. Mapplebeck and Hooper and Mr. Whitehouse each put in practice on Brevet No. 3 for nearly three hours. Mr. Scott on Taxi No. 2 doing very well. Mr. Durand also appeared after two or three weeks' absence and was out on same machine. Mr. Valzzi, the juggler, now appearing at London Halls, joined school, and put in several turns on Taxi No. 2.

At Bleriot School.—Lieut. Loftus Bryan and M. R. Desoutter out on LB.1 at rolling practice and doing well.

At Blackburn School.—Mr. Buss 1 hour practice. In afternoon Messrs. Buss and Spink 25 minutes and 15 minutes.

Brooklands.—At Ducrocq School.—In morning Mr. J. Alcock circuits and across country. Mr. McAndrew circuits for first time, flying for 20 minutes very nicely; Mr. Alcock circuits with passenger, and across country, and out in evening again.

At Percival School.—Mr. Muller on Caudron straight flights, Mr. Hodge roling.

At Bristol School.—Mr. Merriam with Mr. Featherstone.

At Vickers School.—Mr. Corballis eights on Farman, and Mr. Polluk straights and curves. Major Cameron good straights on Farman with Mr. Knight as passenger. Mr. Soames very good flight on No. 5, and Capt. Stott on same machine started on second half of brevet flight, but owing to misunderstanding flew wide of observers.

Salisbury Plain (Bristol School).—Mr. England tuition to Mr. Tower, and later on tandem mono. with Lieut. Rees. Prince Cantacuzène made fine flight on tandem.

Brighton-Shoreham.—Mr. H. R. Simms on Burga monoplane, built by A. V. Roe & Co., for first time, and put in straight flights. Machine evidently extremely fast and lifts strongly.

FRIDAY, November 22nd.

R.F.C. (Central Flying School).—Misty early, which cleared by 9 a.m., then bright sunshine. Very light north-westerly wind. On Avro 404, Capt. Fulton, R.F.A., with Ldg. Seaman Bateman on practice ground 20 mins.; Leading Seaman Bateman 15 mins., straights and 8 min. circuits alone making good landings. Capt. Fulton with Lieut. Winfield-Smith 15 mins., Lieut. Winfield-Smith 10 mins. and 8 mins. On Maurice Farman 403, Lieut. Pepper 20 mins., Lieut. Allen (twice) 10 mins., Lieut. Waldron 24 mins., Lieut. Abercromby 23 mins. alone and with a passenger 22 mins. On Maurice Farman 415, Lieut. Stopford 57 mins. On Maurice Farman 418, Major Ashmore 22 and 18 mins., Lieut. Hartree 17 and 6 mins., Capt. Salmond 11 mins., Lieut. Cholmondeley 16 mins., Master Mechanic T. O'Connor 6 mins. On Short tractor 413, Lieut. Hubbard 20, 35, 20, 7, and 14 mins.; Major Gerrard, R.M.L.I., with Lieut. Smith-Barry 7 mins., Lieut. Smith-Barry 15, 11, 13, 15 and 40 mins., Capt. Risk 21 mins. On Henry Farman 412, Lieut. Lushington, R.M.A., 8, 13, and 16 mins., Lieut. Shepherd 10, 6, and 8 mins.; Major Gerrard 7 and 9 mins. alone, with Lieut. Waldron 10 mins., with Air Mechanic Enticknap 6 mins., Lieut. Waldron 40, 10 and 19 mins.

R.F.C. (Lark Hill).—Capt. Fox on 203 round aerodrome, after which Major Higgins took over and flew Farnborough with Lieut. Porter as passenger, returning after remaining there two hours. Height going 2,000 feet and returning 1,800 feet.

Hendon.—At W. H. Ewen School, pupils out at 10.45 a.m. under M. Baumann. Lieut. M. W. Noel straights on mono No 2. Messrs. McGregor, Prosser and Zubiaga hopping on No. 1 mono. and Mr. Cowling rolling. After lunch Lieut. M. Noel and Mr. H. Gist flying at 30 feet and making good landings on No. 2 mono. Messrs. McGregor, Cowling, Prosser and Zubiaga all making good progress on mono. No. 1. Mr. Sydney Pickles after test on 35 Caudron handed the machine over to Messrs. Lawford, Russell and Warren.

At Grahame-White School.—Lieut. Birch on No. 5 Grahame-White biplane, doing straights and circuits and figures of eight, flying steadily at 300 feet and landing well.

At Deperdussin School.—Instructor Brock testing brevet No. 3. Lieuts. Mapplebeck and Hooper and Mr. Whitehouse put in good flights. Messrs. Valazzi, Scott and Durand busy taxying on No. 2. Mr. Scott later took out No. 3 for trial.

At Bleriot School.—Lieut. Loftus Bryan and M. R. Desoutter rolling well. M. Desoutter got off ground by mistake on L.B.1. and landed again hurriedly but well.

At Blackburn School.—Messrs. Buss and Spink out with brevet machine practising landings, latter made one rather heavy one, and finished up with machine flat on its back. Mr. Spink was, of course, wearing a safety belt and was scarcely shaken, and machine being strongly built only broke propeller, two chassis struts and front skids

Brooklands.—At Ducrocq School, in morning, Mr. Alcock circuits and across country. Mr. McAndrew straights. Mr. Alcock circuits at dusk.

At Percival School.—Mr. Muller straights on Caudron Mr. Humphreys (new pupil) straights. Mr. Hodge rolling.

At Bristol School.—Mr. Merriam for test, then Mr. Bendall with Capt. Rickard. Mr. Merriam with Lieut. Mills, Mr. Ewing, Mr. Featherstone and Capt. Rickard. Mr. Bendall with Lieut. Todd and Mr. Ewing. Lieut. Mills two circuits.

At Vickers School, Mr. Barnwell trial circuit on Farman. After test flight by Mr. Knight on No. 5, Mr. Soames went for brevet and took it in faultless style at average of 500 ft., landing close to observers—this really fine performance in distinctly nasty wind which kept the "box-kites" in sheds. Later, wind moderated and Mr. Polluk made first circuit on Farman, putting up very good show. Later he and Mr. Corballis flying alternately. Mr. Corballis also making good eights. After test flight by Mr. Knight, Mr. Babbington made several straights on No. 5.

Salisbury Plain.—At Bristol School, Mr. England with Mr. Tower on biplane and later with Lieut. Parvelescu on side-by-side mono. "Capt. Penfold" on biplane. Lieut. Negrescu on mono., landing quite well.

SATURDAY, November 23rd.

R.F.C. (Central Flying School).—Dull, very strong, bitter cold, westerly wind. On Avro 404, Capt. Salmond 8 mins., Lieut. Winfield-Smith 14 mins., Lieut. Young 17 mins., Air-mechanic Higginbottom 20 mins.—this an excellent flight at altitude of 2,500 ft., Lieut. Abercromby 10 mins. On Avro 406, Capt. Salmond 7 mins.' trial after engine overhaul. On Maurice Farman 403, Lieut. Pepper 15 mins., Lieut. Allen 20 mins. On Maurice Farman 415, Lieut. Cholmondeley, with Asst. Paymaster Lidderdale, left school at 8.50 a.m. for Winchester, but meeting rainstorms returned an hour later. On Henry Farman 412, Lieut. Lushington, R.M.A., 20 mins. Capt. Beck, with Lieut. Martin, on Maurice Farman 215 from Farnborough came over for about an hour and returned. Mr. Pizey from Larkhill on Bristol mono.

R.F.C. (Lark Hill).—Capt. Fox round aerodrome. Later in morning Lieut. Porter arrived in new Maurice Farman from Farnborough. At good height he shut off engine and came

down splendidly, landing with considerable skill. Time from Farnborough to Lark Hill was 1 hr. 30 mins. against wind.

Hendon.—At Deperdussin School, Lieuts. Mapplebeck, Hooper, and Messrs. Whitehouse and Scott good straights on No. 3. Mr. Valazzi on taxi No. 2, getting along well.

At Blériot School, Lieut. Loftus Bryan rolling.

At Blackburn School, 8 a.m., Dr. Christie in moderate wind practising straights half an hour.

At Grahame-White School, much exhibition flying and passenger-carrying in afternoon.

Brooklands.—At Ducrocq School, in morning, Mr. Alcock for good high flight over Weybridge and surrounding country, landing with glide from 1,000 ft.

At Bristol School, Mr. Merriam with Lieut. Todd and Mr. Featherstone, Mr. Bendall with Mr. Ewing.

At Vickers School, Messrs. Polluk and Corballis good work on Farman, while Mr. Babbington, who has progressed in really remarkable manner, went up on No. 5 for second time and proceeded to do figures of eight in bumpy wind. Later, Mr. Barnwell did straights on Farman to test adjustments.

Salisbury Plain.—At Bristol School, Mr. Pizey on tandem to Upavon with box of stores for Central Flying School. Mr. Busteed on 80-h.p. monoplane, with Prince Cantacuzène. Mr. Pizey testing new engine.

Liverpool (Waterloo).—Liverpool Engineering Society, to number of about 200, visited hangars, and Messrs. Melly, Hardman, and Birch explained engines and handling of three machines to an interested crowd. Although weather was anything but good, raining at intervals and wind blowing at 20 m.p.h., sooner than disappoint visitors Mr. Melly took out "Y" machine and did one flight, including a figure of eight, but trip was so bumpy that he did not go out again.

SUNDAY, November 24th.

Hendon.—Blackburn School out at 8 a.m. Mr. Blackburn, school instructor, to demonstrate efficiency of school equipment, took "rolling" machine for a 15-min. flight over Welsh Harp and Hendon at 700 ft., finishing with spiral glide. Dr. Christie practising straights, getting to good height, followed by Mr. Buss in spite of breeze.

At Grahame-White School, Pilots Noel, Desoutter and Manton busy all day passenger carrying and exhibition flying.

Much good work done by numerous other pilots, as per special report.

Brooklands.—At Ducrocq School, in morning, Mr. J. Alcock out and Mr. McAndrew circuits only a week after first time on machine. In afternoon Mr. Alcock circuits, and later won first prize in speed competition. Excellent work.

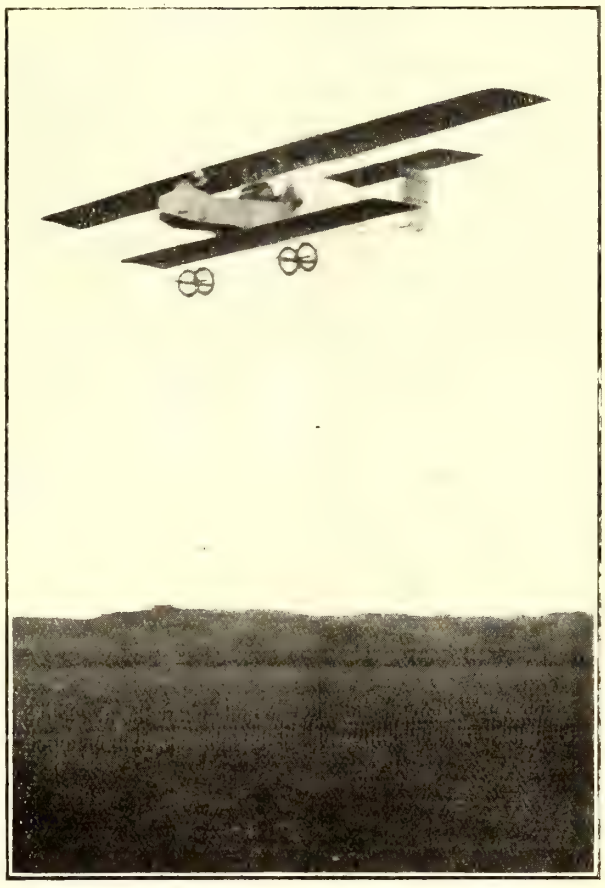
At Vickers School, in afternoon, Mr. Barnwell made flights with passenger on Farman. Messrs. Polluk and Corballis alternately flew Farman. Mr. Knight also flew same machine in handicap, coming in 3rd.

At Bristol School, Mr. Merriam with Lieut. Todd. Mr. Bendall with Mr. Ewing.

Handley Page monoplane arrived from Hendon and went back in afternoon. Speed handicap keenly contested, four seconds covering first three, Mr. Sopwith doing fastest time. Result :—1st, Mr. J. Alcock (Farman biplane), 2 min. 46 secs.; 2nd, Mr. Sopwith (Sopwith biplane), 2 min. 48 3-5 secs.; 3rd, Mr. Knight (Farman biplane), 2 min. 50 secs. The winner, Mr. J. Alcock, has just qualified as a pilot, and this was his first race. Also flew, Mr. Hawker (Sopwith biplane), Mr. Spencer (Spencer biplane), and Mr. Merriam (Bristol biplane). During race Mr. Barnwell on Vickers monoplane made fine high flight, reaching 4,300 ft.

The Week-end at Hendon.

Despite the poisonous weather of Saturday last there was a large amount of flying at the London Aerodrome. There was a strong, very puffy wind, and rain threatened, but in spite of this the public had an excellent show. Mr. Louis Noel was out at intervals all the afternoon on the 80-h.p. Farman; Mr. Grahame-White himself turned out on one of the G.-W. school biplanes and showed that he has lost none of his old skill, though his first "get-off" was rather weird, chiefly owing to the fact that he was sitting on one of the warp wires. Mr. Manton, on the same machine, showed that he is rapidly becoming one of our best pilots. Mr. Desoutter, as usual, flew finely on the old Blériot. Mr. Sydney Pickles, on the 45-h.p. Caudron, went up and disappeared in the clouds for quite a long time, but failed to find the sun, as Mr. Noel had done the previous Saturday. Lieut. Porte, R.N., and Mr. Gordon Bell were both out on Deperdussins, the latter testing the new two-seater with the 75-h.p. Anzani for the Flying Corps. Altogether a very good show for a very bad day.



Mr. Noel on the 80-h.p. Farman on Sunday.

A Bright Sunday.

Sunday was a lovely day, bright and sunny, but it was spoilt by a strong, cold north-west wind. Nevertheless, there was more flying than ever, and there was quite a respectable crowd to see it. The megaphone operator was kept busy for a couple of hours announcing flight after flight. Mr. Noel topped the list of flights, making over a dozen, and carrying nine passengers, on the 80-h.p. Farman. Early in the day Mr. Trevor Handley had gone over to Brooklands on the Handley-Page monoplane, but on the way back a valve went and let the machine down in a ploughed field at Sunbury. A spare valve was got from Brooklands and the pilot cleverly got out of the plough alone, going back to Brooklands to pick up his passenger, and arriving back at Hendon about 3.30 p.m. with a fine long glide. After its return the machine made a number of flights, twelve of them with passengers. Mr. Desoutter seemed particularly pleased with the machine.

Mr. Desoutter was also out on the old Blériot, and up to 4,000 ft., flying very well, and later on Mrs. Stocks took the machine up in quite a nasty puffy wind, flying better than I have yet seen her fly, probably because, knowing there was a wind, she was very careful about her cornering and landing.

Mr. Manton, on the G.-W. school biplane, flew splendidly in the windiest part of the afternoon, when there was fully a 30-mile wind at 150 ft., his machine almost standing still.

On the 45-h.p. Caudron, Mr. Pickles got up high and made a fine glide down, after which he took up several passengers.

Two Deperdussins were out, Lieut. Porte, R.N., making a fine high flight on the one with the 100-h.p. Anzani engine which was built for the Military Competition. This machine flies very strongly and climbs well, and now that the engine is in proper tune it seems a better machine than the sister-machine bought by the Army. Afterwards he flew again with Mr. Keith-Davies as passenger. Mr. Brock, the Dep. school pilot was also flying well on the little 35-h.p. machine.

Altogether it was a busy afternoon, and the spectators had every reason to be pleased with the flying, which is likely to be better and better as the winter passes and the various manufacturing firms get their new type machines through.

Mr. Pixton's Marriage.

On the 19th, Mr. Cecil Howard Pixton was married to Miss Maude Hallam at St. Anne's-on-Sea. The news came very much as a surprise to most people, for Mr. Pixton never told even his closest friends that he intended to get married till two or three days before the wedding. Nevertheless, everybody will wish him and his bride every happiness in the future. Mrs. Pixton, who is the daughter of the late Chief Constable of Salford, is accompanying her husband on a trip to Italy in the course of the next few weeks, where he is going in order to demonstrate the Bristol machines to the Italian authorities. A part of their brief honeymoon was spent during the past week-end at Brooklands and Hendon. Needless to say, his old friends were pleased to see Mr. Pixton after so long an absence, and their congratulations were the more hearty when they had had the pleasure of meeting his bride.

The Aeronautical Society.

The third meeting of the society will be held on Wednesday, December 11th, at 8.30 p.m., at the Royal United Service Institution, Whitehall, when Dr. R. T. Glazebrook, F.R.S., director of the National Physical Laboratory, will preside. Mr. E. H. Harper, M.A., will read a paper, to be followed by a discussion on "The Mathematical Theaory of Aeroplane Stability." An endeavour will be made to expound as simply as possible the theory of stability due to Professor G. H. Bryan.

A New Short Biplane.

Messrs. Short Bros. are to be congratulated on the success of their new biplane built on the lines of the "S.38," described recently in this paper. This machine has the pilot and passenger well out in front of the lower plane and the planes themselves are swept back further than in the "S.38." With a 70-h.p. Gnome engine, the machine, piloted by Lieut. Parke, R.N., who was accompanied by two passengers, rose to 1,000 feet in 9 minutes without being actually forced up, and it is said to be exceptionally handy and stable.

Good Work at Eastbourne.

Some quite good work has been done lately at the Eastbourne Aviation School, which is run by Mr. F. B. Fowler. He has had twelve pupils signed on since last July, and five of them have already taken their certificates. Several of them are Naval men, and a couple of them are pretty well ready to take their certificates now; but, of course, the trouble with unofficial Naval aviators always is that they have a good deal of work and little time for play, so they have not much chance of practising.

Mr. Hall at Sheffield.

Mr. J. L. Hall, who has recently been giving exhibition flights at Sheffield under the auspices of the "Sheffield Telegraph," had a narrow escape from a very nasty smash on Saturday. After making one circuit of the Redmires Racecourse, Mr. Hall was just completing the second circuit when the machine side-slipped and came down in an old conduit which supplies Sheffield with water, striking a wall on the way and knocking it down. The police on duty kept the crowd from getting to the machine, and the officials who went out to the wreck found Mr. Hall had escaped uninjured, though the machine seems to have been a very complete wreck.

Prior to this flight, Mr. Hall is alleged to have taken up two chimpanzees as passengers; at any rate, he was photographed with the monkeys on the machine, and the local paper reports their experience thus:—

"The weather being very cold, their experience had to be a short one, but they seemed thoroughly at home in the seats provided for them on the machine. They arrived in a taxi-cab just after noon. Hans and Greta, who were warmly clad, walked from the motor to the aeroplane, which they inspected with great interest. They were assisted to their seats just behind the aviator. Hans, who was provided with a pair of motor goggles, laid a friendly hand on the shoulder of Mr. Hall and looked very earnestly at the padded leather helmet which he was wearing."

Some time ago, when Mr. Hucks was flying at Bath, the proprietor of a performing monkey asked him to take it up in machine. The monkey was put into a bag, with his head sticking out, so that he could not get hold of anything in the machine, but when the engine was started he was so frightened and cried so hard that the kind-hearted Mr. Hucks refused to take him up, though doubtless the proprietor of the animal would have very much liked to advertise that he owned the first monkey-aviator—of strictly simian descent, bien entendu.

Continental Notes.

M. Birch, who possesses a Maurice Farman biplane, has flown, accompanied by his wife, a distance of over 2,485 miles in the kingdom of Denmark during a period of fifteen days. He suffered no mishap of any kind. Such a distance, if covered in a motor-car, would be a fairly rapid tour.

Madame de la Roche, whose name is one of the earliest in aviation and who was badly injured while flying an old side-panel Voisin at the Reims meeting, 1910, is again taking an active part in the sport. She is at present practising with a Sommer biplane at Mourmelon.

M. Réne Simon, whose description, according to a card displayed on one of the stands at the recent Paris Show, is "Fool Flayer," has now taken his military brevet on a Sommer monoplane (Gnome motor). His machine was in Molon's shed near Fécamp for some nights, and on November 19th he made a circuit of Le Havre, Dieppe, Rouen, and Le Havre.

M. Champel, the aviator whose enthusiasm in the imitation of the habits of birds carried him into the trees on a Voisin biplane during the Lanark meeting (1910), flew from Juvisy to the chateau of M. Bartissol at Fleury-Merogis on a biplane of his own construction, with M. F. Leclair as passenger. His intention was to take part in a day's shooting. After dejeuner, at which M. Clemenceau (the ex-Premier) and General Joffre were present, he returned to Juvisy swiftly and safely.

The Ministry of the Interior (German Empire) has under consideration a series of regulations for the adequate control of aerial navigation. In addition to dealing with police and industrial questions, it defines the aviator's responsibility in case of accident.

On November 23rd, at Issy les Moulineaux, M. Rugère made several test flights on the Voisin hydro-biplane (200-h.p. Clerget engine) constructed for M. Deutsch de la Meurthe and designed to carry six passengers in addition to the pilot. The aeroplane weighs, with petrol and oil, 4,400 lbs. It rose and flew quite steadily at a speed of 68 miles an hour.

The Death of André Frey.

After an adventurous career as an aviator M. André Frey was killed on November 21st while making a practice flight round the aerodrome of Béthény, Reims. He was piloting a large Hanriot monoplane (100-h.p. Gnome engine) belonging to M. Bielovucic at 3.30 p.m., and when over the Chalons Reims railway line the machine appeared to dive headlong to the ground from 150 feet. Frey was killed instantly.

He was born at Tours on January 21st, 1886, and took his certificate as pilot on June 10th, 1910 (No. 93). During 1911 he took part in several of the great competitions, finishing third in the Paris-Rome race on a Morane-Borel. He alone attempted the flight from Rome to Turin, but had a serious accident at Ronciglione, where he broke both his legs and an arm, and remained seven hours alone in the wood where he fell, before help arrived.

Most people after such an event would have relinquished aviation in favour of some less exciting sport. But on the contrary, Frey flew again to such effect that in the Gordon-Bennett eliminatory trials he was placed as a representative of France. His last months were spent as a pilot of the new type Hanriots. By his death aviation loses one of its most popular and experienced exponents.

Mr. Isaacson's Case.

Miss E. C. Pimlott, nurse, of Halifax, was awarded £175 damages, at Leeds, against Mr. R. P. Isaacson, of Leeds, the inventor of the Isaacson engine, for injuries sustained in an aeroplane accident at Filey on August 21 last year. The plaintiff's case was that, while on the sands at Filey, the defendant's machine ran into her, and she was badly injured, being unable to follow her profession for some time. The defence was that the lady's injuries were exaggerated.

Mr. Willows' Appeal.

Mr. Ernest Willows, who made the famous night flight in his airship "City of Cardiff" from Cardiff to Sydenham last year, and who afterwards flew to Paris, appealed from a judgment of Mr. Justice Scrutton in favour of the North British Rubber Company, who sued Mr. Willows on two bills of exchange for £253 4s. 2d., given by him to the company for material which they supplied.

Mr. Willows set up breach of warranty as defence. His counsel said all the materials supplied ought to have two years' life, whereas they had only five months. The appeal was dismissed.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.
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THE AEROPLANE

1D WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

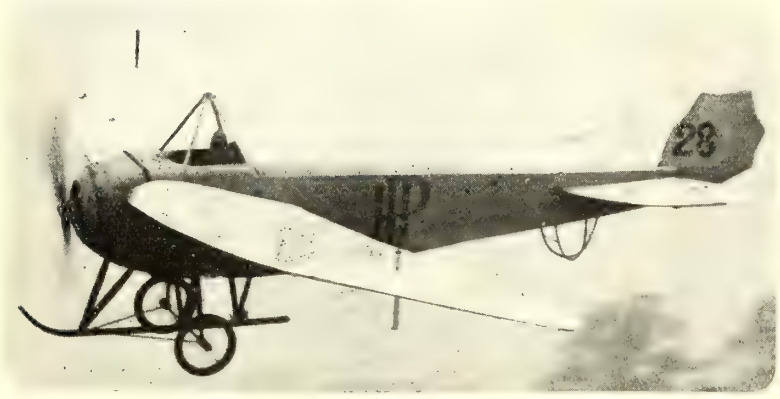
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OUR FRIEND THE ENEMY.



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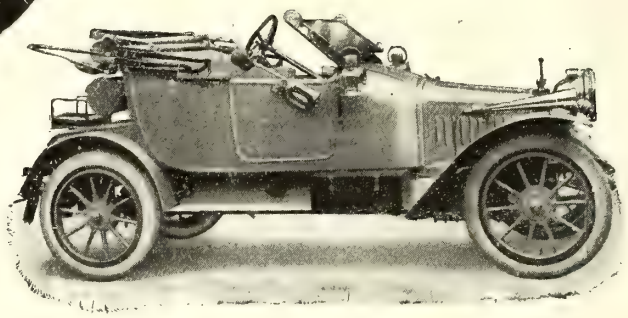
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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Aileron, London.

On Aerial Defence in General.

We are told by the one and only Reuter that Adrianople has been set on fire by bombs dropped from Bulgarian aeroplanes. We have been told officially by the First Lord of the Admiralty that an aircraft, which was not a British aircraft, has been heard over Sheerness. We know that the German Zeppelin dirigibles will fly at 50 miles an hour, can remain in the air for 31 hours, and can drop half a ton of explosives without affecting themselves adversely. We know that the Germans have evolved special anti-aeroplane guns. We know that France has approximately 500 effective aeroplanes, many of which are so efficient that they can fly at over 70 miles an hour, which is fast enough to make them dangerous weapons against 50-mile-an-hour dirigibles. We know, also, that one British firm of aeroplane-makers has sent £70,000 worth of machines abroad, but has only supplied £8,000 worth at home. It therefore seems time that we in this country should think about possessing an aerial defence force commensurate, not with our tiny army, which is about equal to one Army Corps of any other Great Power, but with the vast territories we have to defend abroad, with our extended coast-line, and with the immense wealth contained therein.

Strangely enough, the visit of the unknown dirigible seems to have impressed the British Press, and, through it, the British public, far more than the progress made by other countries with their aeroplane corps. This is in a way natural, for the mystery of the thing in itself makes a good "story," which is all that concerns the daily Press. As a matter of fact, that visit is not nearly so grave a warning as are the number of flights made across the Channel during the past eighteen months or so by various aviators, and yet the daily papers have hardly ever troubled to point any moral from those flights.

The dirigible of to-day, even the latest and fastest Zeppelin, has distinct limitations as a weapon and as a scouting machine. People are apt to forget that, when working with an army in the field, aeroplanes can be transported with the troops in the worst of weather, and sent off scouting as soon as fair weather arrives, and only take half an hour or less to get ready after the order is given for them to start, whereas a dirigible may be held at its point of permanent attachment, a hundred miles away, owing to adverse winds. While the dirigible is flying to the front, the aeroplanes have already done their work and gone back with their information.

It is a mistake to assume that, because a dirigible can do 50 miles an hour, it is therefore able to turn out in almost any weather; for every aviator knows that a 20-mile-an-hour wind on the ground generally means a 30-mile wind at 1,000 ft., and more than that higher up. It will be remembered that in the attempted race to Belfast the late Mr. Astley found that his 70-h.p. Blériot, which did well over 60 miles an hour, made no headway at 5,000 ft., but got along well at 1,000 or so.

Consequently, if we develop our artillery to such an extent that we can force air scouts to keep above 5,000 or 6,000 ft.—as advocated by General Stone at the United Services Institute last week—we may not only prevent them from obtaining valuable information; but we may often force hostile airships to keep in winds where they can make no headway, although fast aeroplanes could progress at the same altitude, but without seeing much. At the same time our own aeroplanes, flying at a lower level, could go on with their work of despatch-carrying over our own lines, and could scout over the enemy's country, provided the enemy did not also possess high-angle, high-velocity guns. It is therefore obvious that we must develop special anti-aeroplane artillery, as the Germans and French are doing. There is a grim humour in the fact that, on the evening of the very day on which the Secretary of State for War had stated that it was "not in the public interest" to give any information as to whether we have any guns "capable of hitting an airship 6,000 ft. high," a number of distinguished and experienced officers should have discussed methods of dealing with hostile aircraft, on the assumption that we have no guns of any kind suitable for the purpose.

However, guns alone are not sufficient defence, and undoubtedly Major Sykes was right in his opinion that we should "take on" hostile aircraft with other aircraft. For this purpose the big dirigible seems the most obvious vessel, providing, as it does, something approaching a steady gun platform. Against the big dirigible the aeroplane occupies much the same position as the destroyer does against the battleship. If it is to have any chance at all of success, it must be very much faster, and, in the case of the aeroplane, it must be faster both horizontally and vertically. In a real emergency, even a Zeppelin could probably rise faster than any aeroplane by the desperate expedient of jettisoning part of its load, but it seems doubtful whether such a huge bulk could be forced up through the air faster than the best aeroplanes climb. Even if it did, it becomes a question of the limit of height for each machine. At a certain height the dirigible would have to let out gas, owing to the expansion of that in the balloons, and letting out gas means decreasing the length of time the machine can remain in the air.

In a fight between aircraft the uppermost position means even more than the "weather gauge" did in

the days of sailing warships. It is said that the new Zeppelins are to be fitted with gun platforms on top, so as to be able to drive away aeroplanes which may get above them; but it scarcely seems likely that the light framing of the vessel would withstand the recoil of a gun of any effective calibre, and, in any case, if an armed aeroplane could once puncture a dirigible from above, it is highly improbable that the gun would be fired in the middle of escaping hydrogen.

This state of affairs naturally brings one to the question of the armament of fighting aeroplanes, which opens up a whole new field to small-arms manufacturers. Presumably the sheer barbarity of fighting in the air will automatically abolish the decrees of the Geneva and all other conventions which have dealt with international laws of war, and one will use expanding and explosive bullets without objection. Why one may disintegrate a dozen men or more with a shell, and not dismember one with an explosive bullet, is rather hard for the lay mind to grasp. Certainly explosive bullets would be useful against a dirigible, as one might, with luck, set the whole thing alight, and, if one of these bullets happened to hit one of the crew instead, the inhumanity of the act would scarcely be greater than that of bringing the whole thing down with a shell.

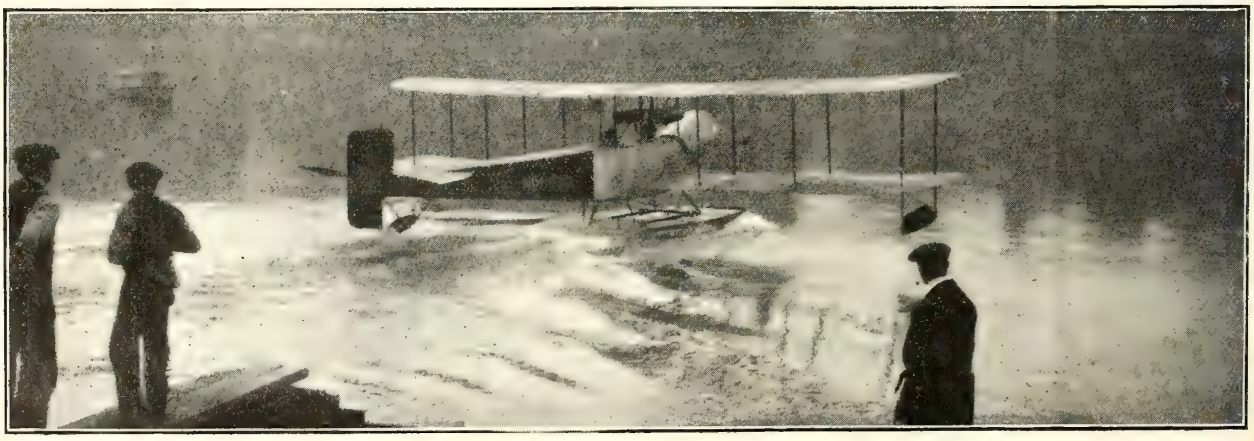
War in the air is going to be very brief and very ghastly, therefore the better we prepare for it now, the less it is going to cost us in money and human agony in the future. The worst possible thing we can do is to prepare a little insufficient, if not inefficient, air corps, with a reserve of half-trained pilots who will be sent off at intervals during a war to fill the gaps caused by casualties. This policy, which seems to be the policy of to-day, is merely a way of increasing the expense in men and money without doing anyone any good. If we are to have an air corps at all, it must be bigger and better than that of any possible enemy. The naval policy of two keels to one is no more essential to the safety of the nation than is an aerial policy of two wings to one.

Machines must be ordered. It is no use waiting twelve months for a dirigible, and more months for duplicates of it. Let us have dirigibles by all means, but let us realise that we cannot hope to rival Germany's present airship fleet for several years to come. Our Astra-Torres and our Parseval, when we get them, will be mere training ships, and absolutely at the mercy of the present Zeppelins. Therefore our only hope is in fast aeroplanes—British-built, with British engines.

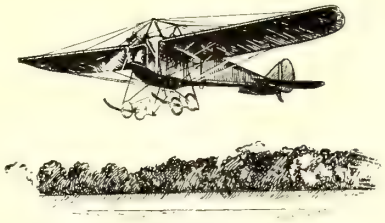
If possible, let us have an official specification, with a guarantee that all machines built to that specification and passing certain tests will be bought. If, from motives of policy, that is impossible, then let us be told that really considerable orders will be placed for machines of approved designs. It is no use ordering half a dozen machines from each of half a dozen firms, and withholding repeat orders from those who deliver quickly until the overdue machines are also delivered. No firm can be financed to handle orders in that way. Let us have orders for 20 or 30 aeroplanes given to each of the firms who show that they can build suitable machines.

It is purely a question of finance. If a firm can go to City financiers and show them an order for £30,000 worth of aeroplanes, and can produce figures to prove that a profit can be made on them, there will be no difficulty in obtaining the money necessary to build them, but no financier is going to trouble himself over a £3,000 order without definite prospects of anything to follow. Despite the blatant patriotism of the Stock Exchange, the City financier is not a patriot to the extent of gambling a few thousands on national defence. He may maffick in a Union Jack waistcoat, but he will not finance aeroplane firms unless he can see a clear profit on the money. Consequently, if we are ever to have an aeroplane industry on a sound financial basis, which can supply machines for present and future needs, the War Office and the Admiralty must see to it that, when an aeroplane constructor shows his ability to build a sound machine, he shall receive orders which will enable him to obtain the necessary finance. In any other country the makers might be subsidised by the Government, but that common-sense method is not in favour here, and fortunately it is not necessary. All that is actually necessary is a sufficiency of orders to each firm to make aeroplane building a business proposition.

The authorities know we need aeroplanes, and that we need them badly—despite the optimistic evasions of Ministers of State. They can have these aeroplanes in a few months, built throughout of British material and fitted with British engines, if they will go the right way to work to get them.



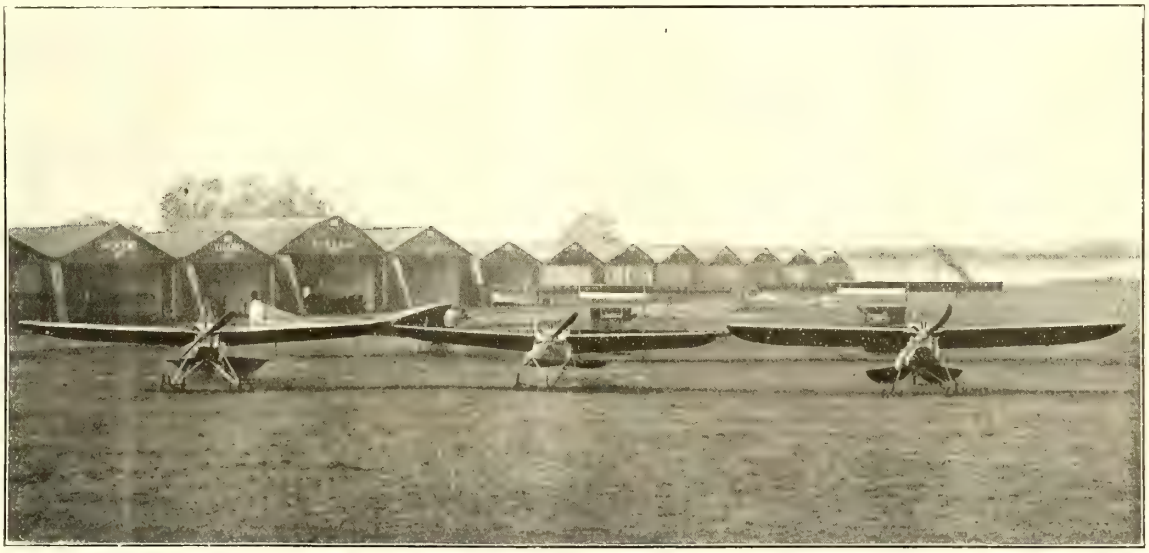
The "Sea Bird" on Windermere. This machine was originally Mr. Duigan's Avro, but she has since been altered by the Lakes Flying Company who have fitted a 50-h.p. Gnome and increased the wing surface.



VICKERS
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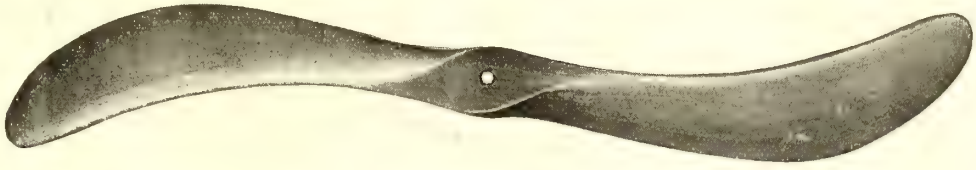
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Military Aerodromes.

BY W. E. de B. WHITTAKER.

It cannot be too frequently reiterated that France is setting the fashions in aeronautics, as it has done in countless other matters since the dawn of civilisation in Europe. There is poor consolation in the thought that it is not always the designer who makes the best use of his own designs. The journalist may direct the trend of public opinion, but his private life is often a whited sepulchre. The flutes of Pan were pleasant, but his nature lacked seductive charm. Yet, though manifestly things are not what they seem, it would be criminal folly to delay advance because the apparent perfection of another system cloaked a sham and a mockery. A bishop may rob a till in Ratcliff Highway, yet honesty is none the less to be admired. And at the moment there is an example set by France that, if Wisdom rules, we should follow with care. We in Great Britain look on aviation as a sport, a rapid road to suicide or penury, or the harmless amusement of figure-bound imbeciles. That it is a serious business with a set place in the firmament of things that be has not dawned on the popular mind, so far as it exists in this country. The great nations of the concert of Europe have accepted aviation, and their fighting Services are altered accordingly. Hesitation has no part in their counsels, and drastic action has no terrors for them. All that must be done in addition to the mere purchase of aeroplanes and the training of pilots has been done with promptitude and decision.

The cause of delay in this country is "public opinion," a curious force distrustful of progress and timid of mental activity. The curse of British supreme government is that few legislative acts are done on their merits. Each step has to be made laboriously as a result of heavy pressure from without. Something of this spirit is apparent in France, but it is not permitted to interfere with national efficiency. As regards aviation, however, there is hardly a Frenchman who does not consider it his duty to help the science in every way possible. As a result, some two thousand people are flying regularly in France; the army has, at the lowest estimate, three hundred efficient aeroplanes, and there are several hundred military aviators ready for service. But more important than all this is the effect of enthusiasm in the provinces.

Each district, each town, village, or hamlet, unable perhaps to take an active part in the practical side of aviation, has concentrated its attention on the formation of miniature aerodromes or simple landing-places that aviators may visit, without worry, every part of the country. Various societies, the local municipalities and private individuals have all worked together to create a network of *terrains d'atterrisage* throughout the land. France covers an area of over 204,000 square miles, as against the 122,000 square miles of the British Isles. The respective populations are 39,000,000 and 45,000,000. Yet France has within its boundaries sixty-nine flying grounds with aeroplane sheds, and sixty-four landing grounds. This in addition to the fact that the greater part of French territory is open country suitable for flying. Except on the extreme east, France is very largely a plateau. Some degree of the rapid progress of aviation is due to this fact.

In Great Britain, according to the Aero Club Year-Book, we have nine recognised aerodromes with aeroplane sheds—Amesbury, Brooklands, Eastchurch, Eastbourne, Farnborough, Hendon, Oxford, Shoreham, and Whitfield (Dover). One may add to that Lanark, Southport, Freshfield, Waterloo (Liverpool), Filey, Huntingdon, Dunstall Park, Castle Bromwich, Filton, and Beaulieu, at all of which places there are sheds and grounds prepared for flying. On several of these aerodromes there are no aviators and no machines, and more serious still, no enthusiasm for aviation in the neighbourhood. Such interest as there was in the beginning has died, owing, perhaps, to the mismanagement and dilatoriness of the early stage-managers of aviation. Even to-day, when flying is a common event, there are thousands in Great Britain undecided whether they are being hoaxed or whether people really rise into the air on frail structures of wood and steel. To raise enthusiasm under such conditions requires the efforts of an immortal or the glint of gold.



Landing a Zeppelin at Halberstadt.—At all German aerodromes a body of specially-trained troops are ready to handle dirigibles. The machine is brought down till the troops catch the landing lines. The tail is then forced down by propeller draught on the elevators. Immediately she touches ground, the fire brigade dashes up and pumps water into her ballast tanks, so that she lies solid on the ground. On departing the water is run out, she is held head to wind by soldiers, the bow is allowed to rise, and she goes away with less fuss than a Channel steamer.

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France, years ahead in the march of aeronautical progress, has not entered completely into the world of perfection, and great numbers are used freely as a synonym for efficiency. Chance has a delightful rule in the land of Charlemagne. Elaborate organisation is arranged which covers the greater part of the ground, but inevitably some matter of importance is completely ignored. Therefore, though France has this large number of aerodromes, their formation has not proceeded on set lines. In a haphazard manner, as such places have been offered by municipalities, so have they been accepted. The Ministry of War has devoted so much time to the development of the official flying schools that matters farther abroad have been somewhat neglected. For instance, Verdun, Toul, and Epinal are strategic points of great importance on the north-eastern frontier of France, and great numbers of aeroplanes are operating in the district from day to day; yet neither at Toul nor at Epinal can hangars be found. Within a few months this omission will be rectified, but it is curious that any delay should be permitted by soldiers whose one common thought is "To the day."

Official aerodromes should be formed and arranged in lines of strategic importance. At present, the usefulness of the military aviator is greatly reduced owing to the lack of suitable landing-places. If an aviator desires to travel from Hendon to York by the air there is no aerodrome at which he can land after Huntingdon. He can descend in the park of a private residence, and such is the courtesy of people that he will probably be hospitably entertained. But becoming a burden to others does not help oneself. Moreover, outside an aerodrome there are difficulties about housing machines and procuring oil and petrol. Skilled aid is also absent.

If a chain of aerodromes and landing-grounds could be formed along the east coast of Great Britain, a great service would be done to aviation and the country. Strategically, such a chain would be of great value, and the advantage to aviation is obvious. Each aerodrome would have a few sheds, a supply of fuel, a mechanic, and telephonic communication with the world. If some of the money spent daily in erection of statues that are an artistic sorrow in the memory of people whose best requiem would be oblivion could be diverted to the furtherance of "national aviation," much good might come. Let the tradesman's love of profit die for a moment, and let patriotism live untrammelled for a space, and perhaps the talk of the decadence of empires might fade for a time. If the common weal does not prosper, then will the private purses be empty.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette" of 26th November:—

Establishment. Royal Flying Corps. Military Wing.—Capt. George H. Raleigh, the Essex Regiment, Flight Commander, to be a Squadron Commander, and is granted the temporary rank of Major while so employed. Dated November 20th, 1912.

The undermentioned flying officers to be Flight Commanders, with the temporary rank of Captain while so employed. Dated November 20th, 1912: Lieut. Charles A. H. Longcroft, the Welsh Regiment, and Lieut. Alan G. Fox, Royal Engineers.

Lieut. Ernest V. Anderson, the Black Watch (Royal Highlanders), to be a flying officer, and to be seconded. Dated October 28th, 1912.

FRANCE.

At Villacoublay on Nov. 24th, a monument was unveiled in memory of Captain Tarron, who was killed at that place on April 18th, 1911, whilst flying on duty. A discourse was delivered by M. Autrand, Prefect of Seine et Oise. The Inspector-General of Aeronautics was present.

On November 23rd and 24th, no less than eight Bréguet biplanes were delivered to the French Army. Seven passed their tests at Douai, piloted by Debussy, and one at Villacoublay by Collardeau.

The 70-h.p. Gnome-engined two-seated (tandem) Blériot monoplane, presented to the French Army by the Colony of Madagascar, was accepted officially at Buc on November 25th. It is named the "Emyrne."

The Ministry of War are not niggardly in their dealings with the Moroccan centre. It is scarcely a fortnight since a number of Deperdussin monocoques were dispatched to that centre, and now on November 28th, three tandem two-seated Blériot monoplanes and two single-seated Blériots left for Casablanca under the charge of Lieutenant de la Morlaye. One of the single-seaters is for Commandant Felix, and the second, that flown by Garros in the Circuit d'Anjou, is for Lieutenant de la Morlaye. The two-seaters will be flown by Quartermasters Feierstein and Peretti.—W.

In a report received by the French War Office from North Africa, a novel use is revealed for an aeroplane. A major named Largest was severely wounded in a sally against a tribe of Tauregs near Chebka, and it could be but a matter of a few hours before death put an end to his agony. The officer was passionately desirous of receiving the last rites, but the nearest priest was at Laghouat, a camp about two days' march away. A young lieutenant of the aviation corps and attached to the Spahis as aerial scout, saw a way out of the dilemma: he volunteered to fly to Laghouat and fetch the padre, and set out almost immediately. Arriving safely in camp, the priest assented to accompany the aviator, and some four hours later the clergyman, bearing the monstrance, stood at the side of the dying major and gave absolution.—B.

GERMANY.

It is reported in the public prints that the latest Zeppelin dirigible balloon constructed to the order of the Imperial Ministry of War has now passed the requisite trials with distinction. If rumour can be believed, a number of bomb-dropping experiments were carried out in secret. It is stated that one-third of a ton of high explosive was dropped from the dirigible on to a raft, which was destroyed instantly.

The cost of a Zeppelin is reported to be £35,000. A crew of eighteen officers and men are carried.

All future airships supplied to the German Army are to be capable of remaining in the air at a stated altitude in motion or stationary for a period of four complete days. The dirigible just delivered can remain aloft for forty-eight hours.

The period of budgets has again arrived, and the signs of the times can be read with ease. The Naval Budget sets aside 2,600,000 marks (over £130,000) for the purchase of dirigibles and aeroplanes and for experimentation.—W.

A Berlin newspaper closely connected with the Government states that as the monies set forth in the German Budget do not suffice to create an aerial fleet on a proper standing, several of the Diet factions have resolved to put down a motion petitioning for a Bill concerning an aerial fleet able to meet all requirements.

A large number of officers took their brevet at Berlin, Johannisthal, at the end of November, chiefly on Albatros biplanes, although monoplanes were represented. Several new "Dove's" have been taken by the military to Doeberitz.

Helmuth Hirth, who is best known as a Rumpler pilot and Germany's first aviator, has entered into partnership with the Albatros Works. This announcement is significant, inasmuch as the firm will now build monoplanes under Hirth's guidance and has closed a very favourable contract with the German War Office.

Apropos of the questions addressed to the First Lord of the Admiralty by Mr. Joynson-Hicks and Mr. Eyres-Monsell on November 27th, regarding the number of British aeroplanes and the superiority of German craft, and Mr. Churchill's evasive answers, it is interesting to learn on excellent authority that the German War Ministry has placed orders for fifty new monoplanes and biplanes with home manufacturers. These fifty machines are to replace the planes that have been smashed or becoming useless for fast work at the Jueterbog, Doeberitz, Cologne, Metz, and Strassburg military stations. As each of these aviation grounds naturally possesses a large number of efficient machines, an idea can be obtained of the sum total of the aeroplanes owned by the military. The real number is unknown to all but members of the flying corps themselves.

Further, following up the agitation set on foot by the ultra-Conservative Berlin paper, "Taegliche Rundschau," it is stated that the Army and Navy departments intend requesting the Imperial Diet to lay down twenty airships.—B.

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RUSSIA.

The first Nieuport built in Russia by the "Les Ailes" Company, who have the rights of construction in this company, made its first appearance on any aerodrome on November 25. Lieutenant Aviator Modrach had the intention of putting this machine through the required test, but after a single circuit of the aerodrome, he found the directional controls working badly. He endeavoured to land with a glide, but fell from a height of 80 feet. The entire aeroplane, including the motor, was wrecked. The pilot escaped unhurt. The Russian Government has ordered thirty Nieuport type monoplanes from this company.

As a result of the recent fire at the Sevastopol Aviation School, Colonel Odintsov has resigned, and has been succeeded as chief by Captain Prince Mouroizi.—W.

ITALY.

During the last fortnight Captain Guidoni has effected some fine flights on his own hydrobiplane at Venice, where the hydromonoplane of Lieut. Calderara, the instructor of that naval flying school, has arrived from Spezia for further trials.

Last Tuesday week (19th inst.), on the occasion of the visit of several foreign officers, and in the presence of H.R.H. the Count of Turin, a great "fly past" was accomplished at Malpensa, near Somma Lombarda, in connection with cavalry manœuvres. Officer Aviators Captain Andriani and Lieutenants Lampagnani, De Rada, and five others, took part. Eye-witnesses accustomed to such sights describe the evolutions as astounding.

Dirigible P.4, on its trials, is doing as well as its sister ships.—T. S. H.

BELGIUM.

Lieutenant Aviator Hagemans, of the Grenadiers, passed at Saint Job on November 25th for his civil flying certificate. He is the fourteenth officer to take his brevet, the others being Lieutenants Martens, Sarteel, Nelis, Lebon, Dhanis, Bronne, Moulin, Rochet, Soumoy, Stellingwerff, Demanet, Dechamps, and Van Loo. Two other officer pupils are expected to take their certificates this week.—W.

BULGARIA.

Lieutenant Milkoff, who left Johannisthal to place his services at the disposal of his native land, Bulgaria, has done so much good work that he has received the rank of captain and been appointed head of the aeroplane department.

Albert Rupp, who was commissioned to deliver three Albatros biplanes to the Bulgarian headquarters, has returned to Germany after three weeks of a somewhat chequered existence. The journey through the Balkans was a very varied one, as the trains were filled with soldiers and wounded, rich in insect life, and subjected to stoppages of hours at a stretch in the open or in the stations. The machines, too, were a source of great anxiety, as they had been sent ahead to Mustapha Pasha by faster trains, whilst Rupp, his three mechanics and several Russian Blériot pilots, who had volunteered for service, arrived days later. In an interview, Rupp states that he felt heartbroken on discovering that no preparations had been made for housing the machines, but at last the humorous side of the situation struck him and his companions and they got to work.

Lieutenant Milkoff intended to fly the first Albatros which was erected in a field where the machine was to remain. During the night a storm blew up and the soldiers ordered to guard the machine fled to shelter; the aeroplane was torn from its moorings by the gale, blown upside down, and completely wrecked after a day's life. On the other aeroplanes being erected, Milkoff and the Russians commenced a series of reconnoitring flights around Adrianople; the Bulgarian officer wisely remained at an altitude of 3,000 feet or so, whilst the Russians flew low and returned with numerous bullet holes as trophies after their outings. A Russian aviator (presumably Popoff) came to grief near Mustapha itself; the bombs he carried burst in the impact and made an end of aeroplane and aviator.

Rupp stayed on for three weeks, poorly nourished, amid most miserable surroundings and then returned to Germany after declining an offer to remain with the Bulgarian Army as military pilot.—B.

CHILI.

The Chilian aviator, Acevedo, who has made so many excellent flights in various parts of his country, flew on October 25th, over the Chilian fleet lying off Iquique, and dropped a tube on to the deck of the flagship, containing a proclamation concerning the formation of a military aviation corps. He is to be placed in charge of a military school at Santiago.—W.

CONTINENTAL NOTES.

France.

M. Roland Garros has left Marseilles for Tunis in the search of climatic conditions favourable to an attack on the height record.

M. Hanouille was flying at Beziers in the afternoon, of November 24, when dusk fell. He disappeared from sight several times, and was at best but a shadow in the gloom. Time after time he made attempts to land, but had to rise again owing to the difficulty of seeing the ground. Finally, intelligence descended on the local authorities; flares were lit, and the tired aviator made a safe landing.

On the same day M. Vedrines flow from Etampes to Angers (280 kilometres) in two and a-half hours on a 50-h.p. Gnome Deperdussin.

Day by day the Parisian paper "L'Aero" publishes interviews with the various renowned aviators, describing their most stirring flights. Audemars, in his interview, speaks feelingly of his early experiences on a Demoiselle, at Issy les Moulineaux, experiences which I watched with apprehensive admiration. His style of atterrisage somehow suggested the idea that the Demoiselle landing chassis was wrongly placed, or that two should be fitted—one above and one below the wings. He tells how after a personal smash at Bournemouth on the day of Rolls' death, he warned that aviator of a bad following wind. His advice was disregarded, and the world knows the rest. He speaks of the unfortunate photographer who, caught taking a photograph of the wreckage, had his camera smashed—a dead loss of £60 and his means of livelihood.

M. Leblanc relates the story of his smash in the Gordon-Bennett race of 1910, and of his fine flight in a tempest from Mezières to Douai, in the Circuit de l'Est. Talking of the Gordon-Bennett of the following year, he says that frightened of Weymann and his fast Nieuport, Hamel and he had the idea of cutting off the wing-tips on their Blériots. The race began. Feverish and tired he lay down tranquilly to watch Hamel win the cup. He heard the crash of Hamel's fall, and went out to find that aviator practically unhurt. He goes on, "I realised immediately that the accident was the result of our stupid idea. Then when I also flew I had but little confidence left. During the whole of my flight I had only one thought. I was to fall also. The minutes seemed hours. I feared the least gust of wind. Then I landed, and my calvary (shall I say?) was ended."

Vedrines proposes to fly a distance of 290 kilometres each day, during the next three months to prove the efficiency of the aeroplane. Whatever may be one's opinion as to the personality of M. Vedrines, one cannot but admit that he has done as much as anybody to demonstrate the utility of aviation.—W.

Germany.

The German Scientific Society for Aerial Technics, founded in April last, called its first congress for November 25 at Frankfort-on-Maine and the large and varied attendance amply proved the vast interest taken throughout the Empire in all questions connected with aerial work. The army authorities were represented by three generals, all universities and colleges sent delegates, the most prominent designers and pilots went to the meeting. Prince Henry of Prussia was in the chair on the second day, when a resolution was accepted to enter into closest connection with the law-giving bodies concerning uniform air-laws. Professor Linke then spoke on aerial currents.—B.

Herr Kober, who was for many years closely connected with Count Zeppelin, has now completed the hydro-aeroplane he was engaged on for so long, and has entrusted the machine to the Swiss pilot, Gsell, for the necessary tests. Gsell carried out a first flight of about fifty minutes, circling about Lake Constance, as the machines are being constructed in the old Zeppelin hangar at Friedrichshafen.—B.

Mademoiselle Galankchikoff, the Russian aviatress whom her countryman Abramovitsch taught to fly at Berlin, has set up a new altitude world's record for women at Johannisthal, reaching an elevation of 2,200 metres (about 7,000 feet). The daring young lady flew a military type Fokker monoplane with a 100-h.p. Argus motor.

The arrival of the dirigible balloon Hansa (Zeppelin) at Halberstadt, on its way from Potsdam to Oldenburg, was watched by enormous crowds. So densely crowded were the roads that three people were run over by a tramcar and killed.

Italy.

Towering up in my list of aerial doings since my last notes were written I find, first, Cagliani's splendid overseas flight

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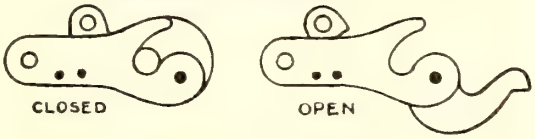
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from Pisa to Corsica on an Antoni mono. Second, great activity among naval aviators at Venice. Third, the vexing question of where and by whom future Italian warplanes shall be built. Fourth, the great "fly past" at Somma.

Of the first event I need only point out that it constitutes an oversea record for an aeroplane, 150 kilometres done in very windy weather too, and that the machine is built with a very extensive spread of flexible trailing edge giving automatic stability to a great extent, and a rather striking undercarriage and landing gear. Cagliani provided it with a primitive kind of air-tight compartments, to wit bladders of air stowed away in the fuselage. With Nos. 2 and 4 I am dealing elsewhere in The Aeroplane, and so to our M. Farmans, Blériots, Nieuports and Bristols, and their constructors. I can name one firm able to build the Farmans if terms can be arranged, while the company managed by the Manisseros and M. Blériot at Turin is already turning out the latter's machines. The Bristols, a fleet in themselves, are causing some feeling among the Nationalists, and negotiations with a Nieuport representative are going on at Milan. I believe some of these latter were actually built at the military workshops some time back. At present little more can be said, as the wound is still raw.

The landing-places scheme is progressing, the Government well to the fore, of course, as they have snapped up or acquired rights in nearly every aerodrome of any considerable value yet started. [British Authorities please follow suit.—Ed.]

I am now able to say something about the epoch-making hydromonoplane which I announced some time back as the outcome of Lieutenant Calderara's temporary retreat from the public eye. It appears as a double monoplane with a striking dihedral to the forward or main plane and high aspect ratio to the back plane (or tail?). Enormous flaps are fitted to the main plane to avoid warping mechanism and the whole rests on four floats, three in front and one under the back plane. The three are so arranged that even at very low speeds the two outside ones leave the water, and the machine travels on practically one long central float as the tail float seems to be little more than an extension of this central forward one. Many passengers can be carried and the whole is reminiscent of Blériot's Limousine and does not seem intended for war. (This aspect of it warrants my including its description in these notes, as its military nature seems at any rate still to be developed.)

Professor Canovetti, who has been making elaborate experiments on air resistance near here for some years, announces that the accepted formulæ are far from correct. Till the scientists confirm, however, one hardly dares rush in.

Considerable difficulty is being felt in allotting the spheres of work of the several Italian aerial societies, who all appear to overlap and be fairly healthy over it. Italian pilots now number, officially, 180.—T. S. Harvey.

The Aerial Danger.

By L. BLIN DESBLEDS (Lecturer in Aeronautical Engineering, The Polytechnic, London.)

The answers to the questions on England's aerial defence which were asked in the House of Commons on the relative value of British and German airships were absolutely futile, and contained several curious evasions by responsible Ministers. The subject is one of such vital importance to the future defence of the country that the public ought to be immediately apprised of the true state of affairs.

England at this moment does not possess a single military dirigible. It is true that the military authorities have two airships, but neither of these has the slightest claim to be considered, by competent judges, as military airships.

What is a military airship? A military airship is a successful airship that possesses military qualities. However well an airship may fly on certain days, it cannot be called a military airship unless it is capable of manœuvring at an altitude of at least 4,000 feet, of possessing a high speed, and of having a large radius of action. These are the three essential qualities of military airships, and all three are absolutely dependent on the size of the airship. Only large airships can be endowed with these indispensable military qualities.

The entire fleet of British dirigibles is composed of two small airships, which, however successful they may be in design, cannot, on account of their diminutive size, be considered of any military value whatever. The construction of small military dirigibles is a huge mistake, and the sooner it is given up the better! It is erroneously thought by some that small airships can be driven at a greater speed than large ones. This is contrary to facts. Even if this were possible, small airships could not be made to reach and navigate at the necessary altitudes.

The Germans have realised this long ago; their airships are already of very large dimensions, and their fresh orders are for still larger dirigibles. The French authorities have also adopted the same point of view. They have recently ordered four dirigibles of over 20,000 cubic yards, which will be delivered in the beginning of 1913. These new dirigibles will be practically double the size of the largest of their present ones, which is of about 11,000 cubic yards, and in comparison with ours is enormous.

The British Admiralty has recognised the fact that military airships must be of large dimensions, although the First Lord of the Admiralty does not yet wish to admit it publicly. If he did so, he would at the same time be obliged to confess that England, in spite of the £300,000 spent on dirigibles, is still without a single military airship. That the Admiralty recognises this deficiency is certain, because it has recently ordered from the French Astra Company a dirigible of great size, of a type designed by the Spanish engineer, Leonardo Torrès Quevedo.

A correspondence between the writer and the Admiralty took place with reference to this question, in which the writer suggested that, in spite of the regrettable fact that the Admiralty was forced to go to a foreign firm for its airship, it might still be possible for the Government and the British aeronautical industry to derive profit from the Admiralty's order to the French company by arranging that the airship should be built in England. It is, however, now evident that this suggestion will not be adopted. The country will be deprived of valuable experience in airship construction, and the British aeronautical industry will remain in exactly the same condition as that which is now forcing the Admiralty to go abroad for its airship.

Not only has the First Lord of the Admiralty hidden from the country its weakness as regards dirigibles, but he has also made a statement which tends to give a wrong impression of the strength of the German aerial fleet. The statement was to the effect that Germany had the following airships:—One naval, one military, two passenger, and one experimental. The real facts are that Germany possesses twelve powerful dirigibles of 13,000 cubic yards, and that five others, of still greater capacity, are in course of construction and will be ready at the end of the year or shortly after. Thus Germany, in the beginning of 1913, will have seventeen military dirigibles as against the single one which the Admiralty has just ordered from the French company.

The Royal Aero Club.

At the Committee meeting, on the 26th inst., the following aviators' certificates were granted:—366, Lieut. Colin George MacArthur, R.N. (Bristol biplane, Bristol School, Salisbury Plain); 367, Prince Serge Cantacuzène (Bristol monoplane, Bristol School, Salisbury Plain); 368, John Alcock (Farman biplane, Ducrocq School, Brooklands); 369, Lieut. Arthur Henry Leslie Soames (3rd K.O. Hussars) (Vickers monoplane, Vickers School, Brooklands).

Letter from the Aero Club de France of November 12th, 1912, requesting the club to give its sanction to the issuing of aviators' certificates to Mr. Ernest Frederic Unwin and Mr. Clive Harold Voss, was considered, and the necessary permission granted.

Public Safety and Accidents Investigation Committee.—The following official representatives were appointed:—

Eastbourne.—Capt. Harold Danvers, Mr. Langley Ellis and Mr. Walter Wood. Hitchin Accident.—The committee resumed its investigation into this accident and the matter was deferred pending further information. Belfast Accident.—The reports on the fatal accident to Mr. H. J. D. Astley at Belfast were considered, and it was decided to invite certain witnesses to give evidence at the next meeting, to be held on December 3rd, 1912. Lieut. W. Parke's Dive at Salisbury Plain.—The Committee having received communications from other aviators who have met with similar experiences to that of Lieut. Parke, it was decided to immediately approach the Advisory Committee for Aeronautics with a view to obtaining their co-operation and assistance in carrying out experiments at the National Physical Laboratory to elucidate the important principles involved. The Royal Aero Club has decided to contribute £50 towards the expenses of such experiments.

Questions in the House.

The following questions were asked in the House of Commons on November 27th. Comment on the answers may be made for themselves by readers of The Aeroplane, who by now know more about the true state of affairs that the Ministers of State—in their official capacity—appear to do.

Naval Airships.

Mr. Joynson-Hicks asked whether we have any airship equivalent in size and power to a Zeppelin or any airship capable of travelling at the rate of sixty miles an hour.

Mr. Churchill: No, sir.

Mr. Joynson-Hicks: Arising out of that effective "No, sir," will the right hon. gentleman tell us how fast our airships can go?

Mr. Churchill: No, sir.

Mr. Joynson-Hicks asked how many aeroplanes belonging to the Navy are capable of a speed of seventy miles per hour, and how many naval pilots can fly over the sea or across country at the speed.

Mr. Churchill: It is not in the public interest to give the information asked for in the first part of the question. With regard to the second part, I am happy to say that we have many naval fliers who can fly over the sea or across country at speeds approaching seventy miles per hour and upwards.

Mr. Eyres-Monsell asked the right hon. gentleman whether he has received any report, official or unofficial, of an unidentified airship passing over the Island of Sheppey during the hours of darkness within the last month.

Mr. Joynson-Hicks asked whether the airship that passed over Sheerness on October 14th was an English one.

Mr. Churchill: I caused inquiries to be made and have ascertained that an unknown aircraft was heard over Sheerness about 7 p.m. on the evening of October 14th. Flares were lighted at Eastchurch, but the aircraft did not make a landing. There is nothing in the evidence to indicate the nationality of the aircraft.

Mr. Joynson-Hicks: Does the right hon. gentleman know where our own airships were on that night?

Mr. Churchill: I know that it was not one of our own airships.

Sir C. Kinloch-Cooke: Were the flares lighted in order that our own airship should know where to alight?

Mr. Churchill: They were lighted in case they might give assistance to aerial travellers in difficulties.

Sir C. Kinloch-Cooke: To foreign ones?

Mr. King: Was this an airship or an aeroplane? Has that been decided?

Mr. Churchill: No, I cannot say which it was. I do not know.

Mr. King: Which do you think it was?

Mr. Crooks: Was it anything?

Mr. Eyres-Monsell: Was not the sound of a motor distinctly heard at the time, and lights seen, which are not carried by aeroplanes?

Mr. Eyres-Monsell asked the right hon. gentleman (1) whether he proposes to use aeroplanes with the view of preventing an airship from proceeding to London or elsewhere; (2) what will be the relative position of Great Britain and Germany with regard to fighting airships (rigid) at the end of 1912, 1914, and 1915; and (3) whether it is the policy of the Admiralty to employ non-rigid airships for engaging rigid airships.

Mr. Churchill: I am informed that Germany has the following rigid airships:—

One naval;
One military;
Two passenger;
One experimental.

There is no doubt that in this branch of aeronautics Germany has won a great pre-eminence. As to the fighting value of such vessels when compared to aeroplanes, opinions differ and experience is lacking. This also applies to the question of engaging rigid with non-rigid airships. I do not wish to make any statement at present on Admiralty policy, but the whole subject is receiving the attention which its undoubted importance demands.

Mr. Eyres-Monsell asked what is the comparative size, tons, speed, endurance, armament, and wireless equipment of the latest British naval airship and the latest German naval airship; and what time would be required to complete four rigid airships for the British Navy.

Mr. Churchill: It is not desirable to publish the details asked for of the latest British airships. It is sufficient to say that they are at present mainly in the experimental stage. The Admiralty has no official information about the dimensions of the latest German naval airship. A rigid airship takes about eighteen months to construct.

Colonel Ward asked whether our dockyards and repairing docks are provided with searchlights and howitzers capable of repelling aerial night attacks.

Mr. Churchill: I see no advantage in discussing such a subject, the importance of which it naturally recognised by the Admiralty.

Mr. Joynson-Hicks asked whether the Defence Committee has considered the effect upon the defences of the country of the development of aeroplanes and airships; and, if so, whether in their opinion we have a sufficient number of aircraft of both descriptions.

The Prime Minister (Mr. Asquith): The answer to the first part of the question is in the affirmative. As regards the second part, the policy recommended by the Committee of Imperial Defence was explained by the Secretary of State for War on the introduction of the Army Estimates. That policy is being carried into effect. The Air Committee, which is a permanent Sub-Committee of the Committee of Imperial Defence, of which the Secretary of State for War is chairman, keeps the question of aerial navigation constantly under review.

Army Aeroplanes.

Mr. Joynson-Hicks asked the Secretary of State for War how many aeroplanes belonging to the Army Air Corps are effective in the sense of having a speed of seventy miles per hour; and how many Army pilots can fly that speed across country.

Colonel Seely: There are five aeroplanes which can fly at seventy miles per hour, and fifteen more are on order which will be capable of similar speeds; several of these are overdue from the contractors. There are twenty-six trained military pilots capable of flying these very fast machines.

Mr. Joynson-Hicks: Are the machines English or foreign?

Colonel Seely: I could not give details without notice.

Mr. Joynson-Hicks asked the Secretary of State for War whether the Departmental Committee recently appointed by him to consider the question of monoplanes has yet reported; and, if not, whether he can expedite their report to prevent us lagging any further behind other nations in the use of these essential weapons.

Colonel Seely: This Committee has not yet reported, but will probably do so very shortly.

Mr. Joynson-Hicks asked whether we have any guns capable of hitting an aircraft 6,000 ft. high.

Colonel Seely: It is not considered advisable in the public interest to give any information on this subject.

Mr. Petre's Departure.

On Friday of this week Mr. H. Petre leaves by the Orient s.s. "Omrah" for Melbourne, to take up the post of chief pilot-instructor to the aerial forces of the Commonwealth Government. His engagement is for one year, but, though his friends in this country will hope to see him among them again before long, it is more than probable that his experience of aviation and general ability will lead to his term of service being considerably extended. All will wish him every success and prosperity in his new undertaking.

Mr. Barber's Return.

Mr. H. Barber, designer and pilot of the famous Valkyrie monoplanes, arrived on Monday from Constantinople, where he has had some most interesting experiences at the front, having visited the Turkish trenches at Chatalja and having been in close touch with the Turkish air corps. He tells the writer that he has, as a result of experience under service conditions, considerably revised his ideas on military aeroplanes. The Aeroplane welcomes his safe return from a trip involving considerable danger.

Another Channel Crossing.

It is reported that on Sunday last a Mr. J. B. Manio flew from Boulogne across the Channel and landed at Kingsgate, near Ramsgate. Details of the flight are still lacking. It is somewhat peculiar that an aviator of sufficient ability to fly the Channel and one who is said to be resident in London, should not be known to be personally connected with aviation in this country, and, furthermore, the writer is unable to find his name in the French list of certificates, so that presumably he has not yet taken his certificate.

Aerial Targets.

On Wednesday of last week, Lieut.-General Sir J. M. Grierson, K.C.B., C.V.O., C.M.G., presided over what was certainly one of the most successful meetings yet held by the Aeronautical Society, when Brigadier-General F. G. Stone, Commanding R.A., South-Western Coast Defences, read a most interesting paper on the subject of aerial targets for artillery by way of opening a discussion on the subject. General Stone said that little artillery practice had been done against anything aerial except captive balloons, and such practice was of little value except in that it was different from any previous practice, and accustomed gunners to firing at targets at 45 degs. elevation and over. Some experiments had been made in firing at a large sheet held up by kites and towed by a cruiser, but in this method there was not enough speed or elevation to make it useful as real practice against aeroplanes. Kites had before now stood a 60-mile wind, so it should be possible by means of a fast cruiser fitted with rapid winding gear to tow a target at 60 miles an hour. One of the difficulties was that the towing vessel must be far enough out from the shore to be in deep water to allow for manœuvring, and if the firing was done from a flat coast that meant a long range and a low angle of fire. On the other hand, if the firing was done where the vessel could be close into shore, it would probably mean that guns would have to be on the top of a cliff, so that their height above water would decrease the angle of fire. He thought that 3,000 ft. ought to be about the proper elevation for the target.

He suggested also that the top kite of a flight might be used as a target, and could be made to represent a dirigible seen end on. Experiments had been made at Toulon with shore batteries firing at a target towed by the cruiser "Foudre." The target was about the size of an aeroplane, and was towed by a 3,000 ft. line. Fifty-six shells were fired at it in fifteen minutes, and most of them burst fairly near, but none of them hit it. So that purely as practice the experiment was useless.

He thought that four types of aerial targets were possible. One might have (A) a target similar to an aeroplane, towed by a dirigible; (B) a target similar to an aeroplane, towed by another aeroplane; (C) an automatic dirigible as a target; (D) an automatic aeroplane. General Stone showed a Japanese kite, which is known as the "Japanese Carp." This is practically a paper bag shaped like a fish, which is flown attached by the mouth to a high pole by the Japanese on festival occasions, the wind entering the mouth and going out at the tail. In principle it is similar to a sea anchor. One of these had been tried as a target attached to a kite, but it was so small as not to be seen at any distance.

As regards aeroplanes towing targets, he thought that pilots might be shy of towing a thousand yards of wire with a target at the end, and, of course, it would only be possible with a tractor machine. The chief difficulty of towing a target with a dirigible would be due to the pull on the car of the machine, but he thought both might be possible, as also would be the wireless control of an automatic dirigible or aeroplane. In either case, the total destruction of the target would be probable if it were hit.

Aeroplanes presented a better target when seen from below, for during the manœuvres it was found that scouting aeroplanes often missed seeing one another, although they passed quite close, the aspect of the machine being less when seen from approximately the same level than when seen from below. Their not seeing one another was due also to observers and pilots being busy looking on the ground, but fighting machines on the look out would be more likely to spot other aeroplanes. Anyhow, machines in the air would probably see one another only for a brief time owing to their approaching and passing so quickly. He thought that under any conditions the risks aeroplanes would run seemed extremely small. The danger from musketry was almost nil, owing to the smallness of the vulnerable area; even if the machine or pilot were hit, they were not necessarily finished

The Discussion.

Lieut.-Col. H. R. Cook, R.G.A., Instructor, Central Flying School, said that as a gunner he took the deepest interest in these problems, though at present one does not know what the problems really are, and as a flier he was anxious to know how not to be hit. He pointed out that an aeroplane practically moved its own length in every second, so that its speed makes it difficult to hit. Also artillery now had to work in three dimensions, and the difficulty seemed to increase as the cube of the dimensions. In firing at aeroplanes one must know the height, range, speed and line. He thought the most useful gun now in the Service was the mountain gun, as it had an immense range of elevation.

Aeroplanes would generally fly at something between 2,700 and 4,500 ft. At 2,500 ft. they were supposed to be immune to rifle fire, and at 4,500 ft. they were supposed to be free from danger of artillery. By means of excellent and simple diagrams on the blackboard, Colonel Cook demonstrated the best way of avoiding artillery fire, or, on the other hand, the best chance the artilleryman had of hitting an aeroplane. He showed how the top of the trajectory of a shell was nearly flat, and pointed out that the problem was to work out the angles for the various altitudes and ranges at which the flattest portion of the trajectory would be most likely to intercept the path of the aeroplane.

As a flier he thought that the best course was to fly low on approaching the enemy's lines, and to rise steadily as one got nearer, because when the flat section of the trajectory was further from the gun the greater the elevation. He also pointed out that every projectile had to come down again, so that it would scarcely be safe for guns to fire vertically at an aeroplane which was over their own lines.

Colonel J. E. Capper, C.B., Commandant, School of Military Engineering, Chatham, said that some years ago he had tried to prepare the first aerial target, which was in the form of an aero-sack, similar in action to the "Japanese Carp." Getting a good target was purely a question of money. The wireless dirigible was perfectly possible, for one had been flying in various music halls for a considerable time. A fast motor-boat or a hydroplane would probably tow faster than any ordinary naval vessel. He also pointed out that the stronger the wind the steeper the line of the kite, and consequently the greater altitude of the target for a given length of line. In a 45 m.p.h. wind the angle of the line was about 55 degs. One could also have swift targets on a land range by towing them from a motor car, and so one could get any angle one wished. He agreed that the chance of hitting the targets was small.

Capt. L. N. F. I. King, R.E., General Staff, said that there was no difficulty in getting kites to over 3,000 ft., and that one officer in a man-lifting kite had reached that altitude. The "Japanese Carp" type of target required more material than the ordinary sheet target, and so would be heavier to lift and tow. He thought that if a target were towed by an aeroplane it might be rather nasty for the pilot if the towing cable were cut by a shell. As regards firing at sea, he suggested mounting the guns on a breakwater so as to get the guns low and close to deep water. He also suggested that a kite target could be towed on a land range by running the towing vehicle on rails round curves, so that the variation in the course of the vehicle would give a different course and altitude to the target as the wind took it in different directions. He also suggested a double sheet target built like a quilt with soot inside, which would make a puff of smoke in the air if hit at all.

Major F. H. Sykes, Commandant, Military Wing, Royal Flying Corps, said that the two great questions about aerial targets were expense and speed. The target must have the speed of the object represented. Vessels at sea had only half the speed of the average Service aeroplane, and two-thirds that of a dirigible. He had tried fairly long runs with a motor car, imagining that he was towing a target, and could only average about 38 miles an hour. If the expense could be afforded, one could certainly set an aeroplane so as to fly alone as a target, but we had not got too many aeroplanes at present in any case. He thought we should not get big results either from musketry or guns against aeroplanes, and that we should not "take on" aeroplanes or dirigibles from the ground, but from the air, and that if the money was available for targets we he had better start our experiments from the air.

Colonel H. S. Massy, C.B. (retired), said that he had been in communication with friends in France, Germany, Austria and Italy, and he gathered that aircraft were practically unhittable from the ground. A stationary dirigible might be hit, but at 40 to 60 m.p.h. it was practically invulnerable. Colonel Renaux, Commandant of one of the chief French musketry schools, told him that he had abandoned the idea of utilising theory, but advocated that section commanders in charge of outposts, who would be the first to tackle hostile aeroplanes, should be given a handy

way of estimating the angle of an approaching aeroplane. He said that the breadth of a man's hand above a flat horizon gave about 25 degs. elevation, two hands 50 degs., and so forth. Col. Renaux also advised that an approaching machine should be put between two barriers of fire, in the case of infantry the front rank firing obviously above and in the front of the machine, and the rear rank approximately behind it. All his informants agreed that aircraft were invulnerable at 3,000 ft.

Lieut. Wilfred Parke, R.N., said that he merely wished to express the opinion of the man who is probably best qualified to speak of towed targets, namely Mr. Cody, who had told him some time ago that there was no difficulty in towing a submerged charge from an aeroplane, and, therefore, presumably there was no difficulty in towing an aerial target. He himself thought it was impossible for an aeroplane to tow a target as large as an aeroplane, but one could have it small and reduce the range.

Major B. Baden-Powell (retired) mentioned the late Mr. Pilcher's block and tackle method of getting a glider off the ground, by so gearing it that a horse walking slowly wound in a very large amount of rope which was attached to the glider, and he thought a similar method might be used in towing a target. He thought the best weapon against aeroplanes would be an automatic gun like a large pom-pom, which would practically pump a stream of shells at the aircraft till one hit it.

Mr. F. Handley Page, in reply to a question from the Chair, said that the value of a hit would depend on how and where the machine was hit. Even if a wing tip was destroyed, the pilot might get down safely.

General Stone, in replying on the debate, said that Colonel Cook's suggestions deserved experiment; in any case, we must have aerial targets. He deprecated the idea that artillery practice at aerial targets was not worth while, for, even if we could not hit aeroplanes, so long as we could make ourselves efficient in shooting at aircraft we could compel them to keep high up and fly fast, and so handicap them in reconnaissance; otherwise their work would be too easy. When we had done this he quite agreed that we should then put our money on hitting machines from other aircraft.

General Grierson's Views.

General Grierson, in closing the discussion, said that the difficulty of producing the target seemed to be the great problem, as we must have height and pace. He found in practice the great trouble was to know whether an approaching aeroplane was one's own or not. In the last manœuvres the aeroplanes and the dirigible had brought comfort and balm to his soul, but when an aircraft came and circled round his lunch table, as one did one day, and dropped a message on to it, he really did not know whether it was one of his own aircraft with a message, or a hostile machine bent on his destruction. He believed that a fight in the air would come long before the troops themselves engaged, for it was impossible for troops to fight while this infernal observation was going on, and whoever won the mastery of the air would win other things. He thought it was better to put one's money on how one aircraft could destroy another.

Major Baden-Powell and Colonel Massy proposed and seconded a vote of thanks to the Chairman.

A Silent Member's Suggestions.

By way of comment on the matter discussed at the meeting, I would like to suggest that automatic aerial targets can be produced at comparatively little expense. There are in this country quite a large number of low-powered engines with which hopeful inventors have for the past three or four years endeavoured to fly, and these engines could be bought up for a matter of anything between five and fifteen pounds apiece. Though they have been unsuccessful in lifting their proud proprietors from the ground, a large number of these could quite well lift say a machine of the size and speed of the little Caudron or Blériot, without the pilot and with small tanks. There is no reason why a number of the old Blériot fuselage and other oddments lying unused in aeroplane sheds all over the country should not be bought up and made into machines which these old Anzani engines could fly. If fitted with wings such as the Handley Page, but naturally built more cheaply, such machines would be practically automatically stable. All their fittings and materials could be of the lightest and cheapest, and probably the whole thing could be produced for a matter of £25 to £50. The smaller engines could be fitted to similar machines, but naturally somewhat smaller, though purely as targets they would probably be quite effective.

After breaking a few of these machines in experiments, it would be quite possible for a few fairly clever men to adjust them so as to fly in a large circular path, climbing steadily all the time, and so to regulate them that on the engine stopping they would get on to their natural gliding angle, and come down comparatively slowly. Probably on hitting the ground they would smash their propellers and skids, but these could be so cheaply constructed that they could



The passenger car—or fighting car—of the "Hansa." Taking this picture in conjunction with that on the frontispiece, some idea of the size of the machine may be obtained.

be replaced at very little cost of either money or time. The weight of the machines could be got down very low, because there need be no running wheels, but merely large skids, the machine being launched off a rail, for all that is really needed in such a target is length and wing area. For use over sea the target would, of course, be fitted with floats, so that it can be hauled out of the water and used again.

Naturally, one would have to be a little careful in the use of such a target, as it would scarcely do for one of these machines used on Salisbury Plain to drift with the wind till it descended more or less gracefully on Salisbury Cathedral; but this, of course, could be avoided with a little practice.

Incidentally, the making of these targets would afford opportunities for cheap experiments in automatic stability, and as they would naturally be built at the Royal Aircraft Factory, they would keep the staff of that excellent institution out of mischief for quite a long time.

As regards the suggestion that targets should be towed by dirigibles or aeroplanes, even with a thousand feet of wire between them, the optical illusions to which even the most temperate of us is subject when watching aircraft at great altitudes are so peculiar that in the event of the towing machine turning it would be quite possible that those on the ground might mistake the tower for the towee, with disastrous results, and, in any case, a thousand yards is such a little thing in the air that even the best gunner in the world might make an error to that extent and hit the towing machine instead of the target, so that it might be wise to rule this method of operation out of court at once, excepting only when we are practising firing from aeroplanes at aeroplanes and the attacking machine has a clear view of which machine is which.

A New Sport.

The sport of shooting automatic aeroplane targets from an aeroplane should be about as exciting as big game shooting, for an automatically stable model, though it does not upset, occasionally takes the most erratic courses when struck by gusts, so there would always be the interesting possibility of the target suddenly turning and endeavouring to ram the attacking machine, so that those sporting officers who look on a charging elephant as game rather more worthy of their attention than a bolting rabbit, should be able to find plenty of real sport at home at Government expense.

I think Colonel Cook rather under-estimated the speed of even the average Service aeroplane, or, at any rate, those fitted for active service, when he said it moved its own length in each second. Thirty feet a second is only twenty miles an hour, so that, as a matter of fact, the little Avro on which he himself has done so much excellent flying, moves rather more than three times its own length in each second. In this way, as a flier, he would probably be very troublesome to himself as a gunner. That is the worst of being two single gentlemen rolled into one. It is greatly to be regretted that more officers of the Royal Flying Corps were not present, as Colonel Cook's remarks were exceedingly interesting throughout, and one now quite understands how it is that his course of instruction at the Central Flying School is so highly appreciated by the officers on probation.

Captain King's suggestion for towing a kite target over a land range from a machine running on curving rails is wholly excellent, and should be by no means expensive. Probably a light electric railway could be laid at comparatively small expense for the purpose, and though one might at first imagine that a kite target towed over rails whose course was known would be comparatively easy to hit, one would undoubtedly find that, owing to the vagaries of wind gusts and the different behaviour of the target in every different direction of the wind, the target's course would be as foreseeable as Mr. Hamel's when he is doing an exhibition flight. There is no reason why a light, cheap kite target should not be built to exactly the dimensions of any given form of aeroplane and towed in this way. If the wings of such a machine were fitted with his suggested soot arrangement for indicating hits, one would probably have as useful and realistic a target as one could wish, and even including the electric railway it would probably come out even cheaper than building a number of automatic targets. It would also have the advantage that one could simply start the towing machine, the machinery of which would, of course, be protected by armour, and one could then either blaze at the target upwards with shell, or fire at it from above with light weapons from an aeroplane.

The suggestion made by Colonel Massy of putting an oncoming machine between two barriers of fire seems excellent to me as a mere ignorant civilian, and apparently none of the soldiers present saw fit to criticise the idea. As the gamekeeper remarked to the guest from the city, in one of "Punch's" famous pictures—"They *will* fly into it sometimes."

As regards the weapon to be used from an aeroplane, I make so bold as to suggest that without bothering about heavy fighting machines and special armament for them, the obviously simple method is to ensure that we have a number of light fast two-seaters, or even single-seaters, as being cheaper in men if they get into trouble, armed only with a scatter-gun, something on the lines of our great-grandfathers' blunderbusses, and firing assorted ironmongery. So long as those machines are fast enough and powerful enough to overtake and climb above hostile aircraft it should be quite possible for the pilot to put anything underneath him out of action. On this point I believe General Stone is inclined to agree with me, and it would be interesting to see experiments tried on these lines as soon as we get our electrical railway and erratic target.

It may not be generally known that the Hanriot machines in the Military Aeroplane Competitions each had quite a large hole in the foot-board through which a gun of this kind could be used. The front of this hole was shielded by a sort of inverted wind screen, so that no draught came through it, and the user of the gun could aim with ease, though, of course, considerable practice would be necessary before he got used to allowing for the deflection caused by the slip stream when the charge passed the screen.

I am told also, on the authority of the late Hubert Latham, that it is very much easier to aim backwards out of an aeroplane, than forwards, so that a machine of the type of the French Deperdussin or tandem Blériot would probably be extremely valuable for this kind of work. In fact, the tractor machine seems to have great possibilities as a destroyer, though open to many objections as an observation machine.

General Grierson's remarks on the difficulty of telling whether an aircraft was friendly or hostile broached what is eminently a difficult problem, for it is hardly likely that various nations will deliberately adopt machines of distinctive types, so that one can tell at a distance of some miles to whom the machines belong. Some secret signal code is the obvious solution when machines are close at hand, but a scouting plane returning to its own lines may very well be brought down by a lucky, or unlucky, shot from an advanced party of its own troops. It appears, therefore, that it may be necessary to keep a number of one's fastest aeroplanes patrolling up and down one's own lines continually in view of the troops, so that on the approach of another machine the pilot may go out and identify it. The troops below will then see that if the approaching machine is not attacked it is obviously one of their own. This, I think, is a duty which has not yet been suggested, and may possibly add one more to the multifarious occupations which will be cast on the unfortunate half-a-dozen officers of the Royal Flying Corps who have had experience of flying fast machines if we happen to be embroiled in a big war in the course of the next twelve months or so. One can only hope that our friends the enemy will, at any rate, leave us alone till we have had some opportunity of putting into practice some of the suggestions made at this meeting.

The Breguet Hydro-Monoplane.

It may interest those who pointed the hand of scorn at the Bréguet hydro-monoplane, "La Marseillaise," exhibited in ostentatious secrecy at the Paris Salon, that this machine has made several very excellent flights in the south of France; at least, such is the report of those who ought to know.

Mr. Gordon Bell's Move.

It is gratifying to note that Mr. Gordon Bell, who has probably flown more different makes of machines than any pilot in the world, has signed on as chief pilot with Messrs. Short Bros., of Eastchurch, and will pilot the Machines they are building to naval and military orders when undergoing their official tests. With his wide experience Mr. Bell should be able to tell at once the quality of any machine he may be testing, so that the Short machines should be in excellent tune when starting in official trials. It is to be hoped that we shall see Short machines entered for any big competitions which may take place next year, for with Mr. Bell as pilot their increasingly excellent qualities should give them any excellent chance against any other makes.

The Aeronautical Society's Programme.

The following is the programme of lectures arranged by the Aeronautical Society for the forthcoming winter season. For the guidance of those who take a practical interest in aeroplanes which fly, rather than in scientific theories which ought to govern aeroplanes that may fly or may not, the notes appended to each item may be of assistance.

Wednesday, December 11th.—"The Mathematical Theory of Aeroplane Stability." By E. H. Harper, M.A. Dr. R. T. Glazebrook, F.R.S., in the chair.

[Evidently purely mathematical, and probably not to be understanded of the multitude.]

Wednesday, January 15th.—"Stresses and Stress Diagrams relative to Aeroplane Structure." By F. Handley Page, A.F.Aë.S. Professor W. C. Unwin, F.R.S, in the chair.

[Probably very scientific, but as Mr. Page is primarily a practical man with a sense of humour, and is a mathematician apparently rather by accident than by design, he is always worth listening to, even when doing his mathematical worst.]

Wednesday, January 29th.—"Stability Devices for Aeroplanes." By Mervyn O'Gorman, M.I.M.E., A.F.Aë.S. Brigadier-General D. Henderson, D.S.O., C.B., in the chair.

[Mr. O'Gorman is also invariably worth hearing, and from the title of the lecture one may expect rather practical theory than pure science on this occasion.]

Wednesday, February 12th.—"The Law of Similarity connecting Models and Full-sized Machines." By L. Bairstow, A.R.C.Sc. Sir William White, K.C.B., F.R.S., in the chair.

[The title is somewhat awe-inspiring, and the lecture is bound to be of purely scientific interest Still, for those who are interested in the purely scientific side, even if they are not mathematicians, there should be considerable interest in the lecture.]

Wednesday, February 26th.—"Military Aviation." By Major F. H. Sykes, Royal Flying Corps.

[This promises to be, perhaps, the most interesting lecture of all, for Major Sykes looks on aeroplanes primarily from the military aviator's point of view, and both constructors and aviators are likely to have the aeroplane presented to them from a point of view somewhat different from that from which they usually regard it.]

Wednesday, March 12th.—"Some Research." By A. P. Thurston, B.Sc., A.F.Aë.S.

[Perhaps it would be well if Mr. Thurston were to announce in the Press whether, in discoursing on research, he is going to give it in mathematical formulæ, which perhaps three of his hearers will understand, or whether he intends to illustrate his lecture by lantern-slides showing the experiments by which his research was made. The writer has seen him do both, and in the second phase he is very interesting.]

Wednesday, March 26th.—Annual general meeting at 8, followed at 8.30 by "Hydro-Aeroplanes." By Commander C. R. Samson, R.N.

[This also promises to be an exceedingly interesting lecture, more especially as Commander Samson has probably done more flying over water than anyone in this country, excepting always, of course, Mr. Adams on Windermere.]

Wednesday, April 9th.—"Propellers." By W. O. Manning, A.F.Aë.S.

[Here, again, is a subject which may be either highly scientific or eminently practical, and the writer gathers from Mr. Manning that he is now rather more inclined to practice than theory.]

Wednesday, April 23rd.—"Aeroplane Construction." By Archibald R. Low, M.A., A.F.Aë.S.

[There is no one who can discourse more interestingly on the purely practical points of construction than Mr. Low, although he can, when inclined, evolve most astonishing formulæ. On this occasion he is likely to stick to the strictly practical side, and his lecture should on no account be missed.]

Wednesday, May 7th.—"Atmospheric Waves, Eddies, and Vortices." By Colonel H. E. Rawson, C.B., R.E.

[This, of course, will be concerned with the meteorology of aviation, and should appeal particularly to aviators themselves, though, judging from the awful appearance of eddies and vortices as generally shown on lantern-slides, the audience should assure that their nerves are in a fit state to stand graphic illustrations of what they unseeingly face day after day.]

Wednesday, May 21st.—Wilbur Wright lecture.

[Lecturer and subject as yet not announced.]

Mr. Cody at Dover.

Mr. S. F. Cody is to lecture in the Town Hall, Dover, on Tuesday, December 17, on "The Progress of Flight During the Past 25 Years." Early application should be made for tickets, which are sure to be greatly in demand. Tickets obtainable from Capt. Marley, secretary, Dover Aero Club, or M. C. Davis, "Oakville," Godwyne Road.

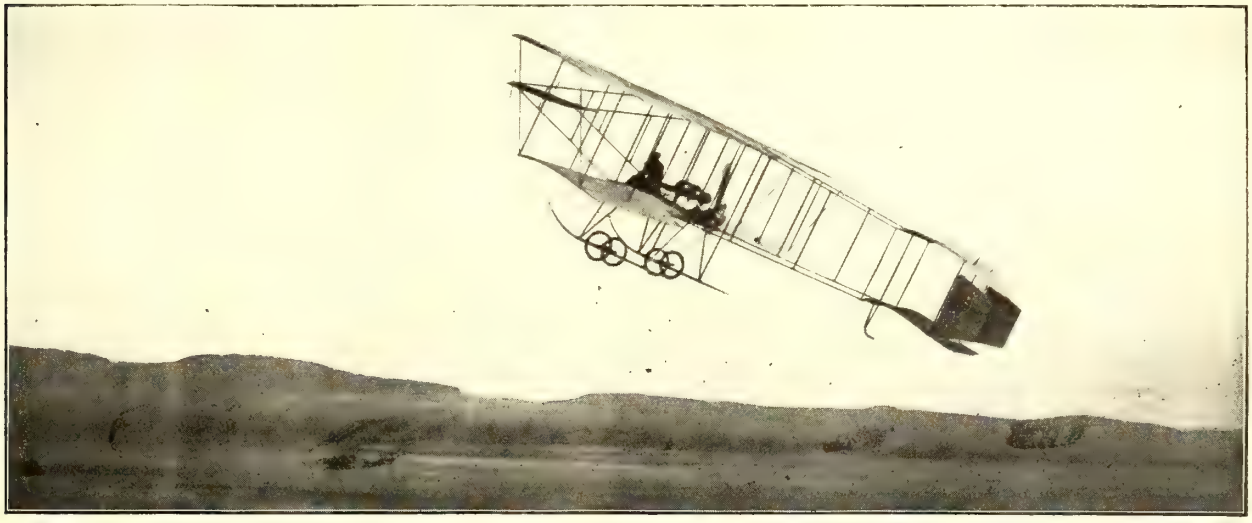
Scientific Model Study.

Mr. A. B. Clark, 1, Railway Approach, Brockley, S.E., intimates that he has been asked to organise a model club in South London, and would be pleased to hear from anyone in the district who is interested in the scientific study of models rather than in the production of mere competition flying sticks.

Honour Where Due.

Mr. Henry Melly points out that The Aeroplane was in error recently when it said that Messrs. Birch and Hardman were the two first pupils at a Lancashire School to take their pilots' certificates. As a matter of fact, the first pupil was Mr. Dukinfield Jones, who is now a director of Howard Flanders, Ltd. Apologies both to Mr. Melly and Mr. Jones The error was due to the fact that the writer of the paragraph regarded Mr. Jones rather as a fellow-worker of Mr. Melly's than as a pupil in the generally accepted sense.

It is interesting to note that in doing their certificate tests on the little 35-h.p. Anzani Blériot assembled by Mr. Melly, Mr. Hardman and Mr. Birch each took ten-and-a-half minutes over their five figures of eight, which is uncommonly good flying.



The Switchback.—Mr. Eric Harrison, the Australian Pilot, on his Bristol Biplane, showing the Germans at Halberstadt, one of his favourite tricks. The position of the elevators shows that he is just getting to the top of the curve. To Mr. Harrison thanks are due for the excellent photographs of the "Hansa" in this issue.

Artillery and Aeroplanes.

BY "ARMAGEDDON."

"Aerial navies grappling in the central blue, etc."—
Tennyson.

At the discussion on the 27th inst., after the reading of General Stone's interesting paper at the U.S.I., the general opinion seemed to favour the attack of hostile aeroplanes by other aeroplanes. The possibility of hitting them from the earth by fire from our present artillery was considered infinitesimal. The attack of aeroplanes by artillery forms one of the hardest and most interesting problems for the gunner.

What is not realised at present by those who view the problem as practical aviators, is that our present artillery was not designed for attacking aeroplanes. For targets on Mother Earth it is very efficient, but using it to shoot aeroplanes is like trying to shoot bees with a dust-shot rifle—a practice indulged in by one of the greatest shots in the world.

It is obvious that aeroplanes can best be attacked by other aeroplanes, but an auxiliary means of attack from earth is also necessary. This auxiliary method must either be specially designed artillery, or some other system.

It has taken many hundreds of years to develop the modern gun from the leather and stone and wooden weapons of the Middle Ages. Given time and money there is no insuperable difficulty in designing a gun which could combat aeroplanes with a fair degree of success. To expect artillery at present to combat aeroplanes at great heights is on a par with pitting a cavalry brigade against a Dreadnought. Many are probably familiar with the story of the capture of a Dutch man-of-war by French cavalry, but the unfortunate vessel happened to be ice-bound in the River Scheldt—and no one would dream of inferring from this incident that cavalry were dangerous adversaries for a battleship.

To return to our muttons. Efficiency in war can only be obtained by thorough and progressive practice in peace. Peace practice may be considered under two main headings:

1. The provision of suitable and realistic targets.

2. The method of engaging these targets.

With regard to 1. The targets employed must resemble aeroplanes or dirigibles in size, shape and colour, must move at realistic speeds and suitable altitudes. Moreover, these targets must be cheap to produce and so designed that the effect of fire on them may be observed and discussed. Indiscriminate fire on targets without tabulated results from which valuable lessons may be learned is a waste of time and money. Peace practice must be methodical and progressive.

Many and varying peace targets have been suggested, and the following examples cover most of the possible arrangements:—(1) Kites or balloons towed by fast motor-boats. (2) The same drawn by cars or engines on suitable tracks. (3) Fire or gas balloons. (4) Large models slung on cables—the cables stretching across a valley between two high mountains. (5) Towing models by aeroplanes. (6) Large models resembling aeroplanes or dirigibles on the principle of daylight fireworks. These could be discharged from the earth or from aeroplanes. (7) Automatic aeroplanes controlled, if required, by wireless. These would obviously be too expensive, as targets are meant to be hit.

When certain Frenchmen first designed a fire-balloon they persuaded two sporting individuals who had been condemned to death for murder to make the first ascent, accompanied by various feathered passengers. Much to their astonishment and gratitude the murderers returned safely to Mother Earth, having been nearer Heaven than they would ever get again. They were fortunate enough to be pardoned for this exploit. The same method cannot, unfortunately, in our days be employed with aeroplane targets, apart from the fact that murderers do not usually hold aviators' certificates, and no aviator has as yet indulged in the habit affected by our two aforementioned friends. We must, therefore, fall back upon some system indicated in 1 to 7.

Method of Engaging Aeroplanes.

Targets on land can only move in two dimensions, and they can be ranged on with comparative ease. Targets in the air move in three dimensions and at great speed. To fix the position of an aeroplane in the sky, i.e., with reference to its range and altitude, is extremely difficult. To range upon it is practically impossible. The following method is suggested as a possible means of combating aeroplanes with our present artillery with a fair degree of success. It must be remembered that we can only fire on a hostile machine when we know that the projectile, on returning to the earth, will do no harm to our own troops. In war, special batteries must be detailed for anti-aeroplane work, and their sole duty will be to engage hostile machines. The method to be described will, for the sake of reference, be designated as the "Datum" method.

Several aeroplanes, designated "Datum Machines," will be detailed for this purpose. Their duty will be to enable battery commanders to fix "Datum Points" in the sky. Each anti-aeroplane battery will have a certain section of the sky allotted to it. Take the case of one specific battery with, say, one "Datum Aeroplane" allotted to it.

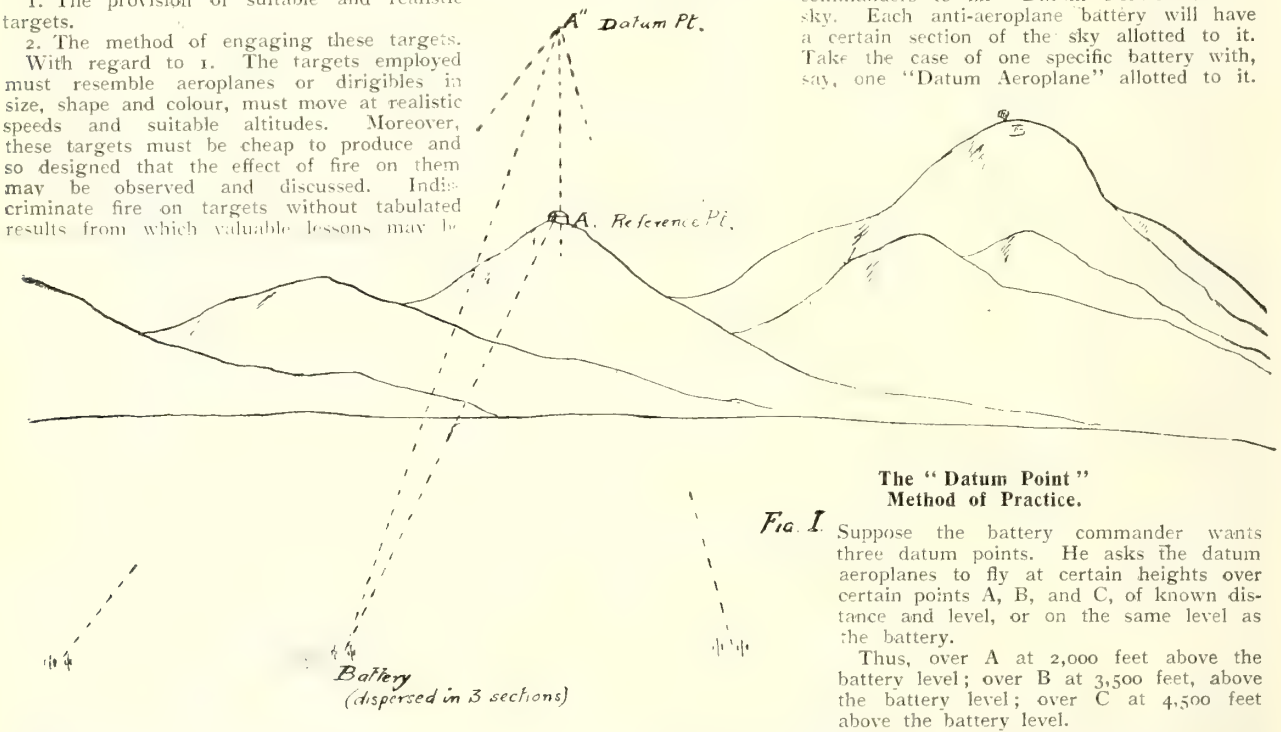


Fig. 1.

The "Datum Point" Method of Practice.

Suppose the battery commander wants three datum points. He asks the datum aeroplanes to fly at certain heights over certain points A, B, and C, of known distance and level, or on the same level as the battery.

Thus, over A at 2,000 feet above the battery level; over B at 3,500 feet, above the battery level; over C at 4,500 feet above the battery level.

When the machine is at A—i.e., vertically over A and 2,000 ft. above the battery level—it signals to the battery. The battery commander can now take all his angles. He has already taken the range to point A. Similarly with B and C.

These points are now fixed—i.e., the angles of elevation to them are known—and the ranges to them can be calculated as in Fig. 1. These results are tabulated.

Imagine a hostile aeroplane approaching point A at an unknown height. The battery commander can now make a fairly accurate caluculation as to its range and elevation, and a fairly good guess as to how far from A it will pass.

Owing to varying height and the difficulty of ascertaining when the hostile machine is over or near A, we can increase our chances of success by dispersing our battery into three sections at intervals of, say, three hundred yards.

Observation from three different points should fix the position more accurately, and three separate lines of fire converging on the machine will increase the chances of hitting.

It is obvious that our datum points can be fixed without the aid of a datum aeroplane, but the observation of this machine, acting as an "understudy" for the enemy, will give a very good idea of what a machine will look like when near the datum points.

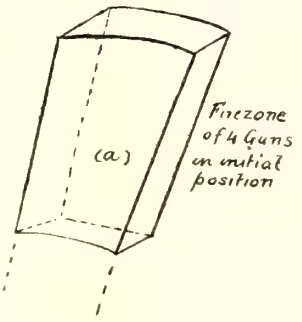
Several shells fired at varying ranges, etc., should have a chance of hitting. This method, it should be remembered, is only a make-shift, suggested for use with present guns which have not been specially designed to combat aeroplanes.

Suggestions for Anti-Aeroplane Armament.

Two types of armament may be considered :—

(1) Movable armament in the field.

(2) Fixed armament for coast defences.



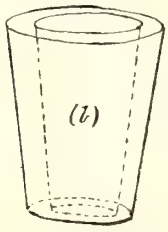
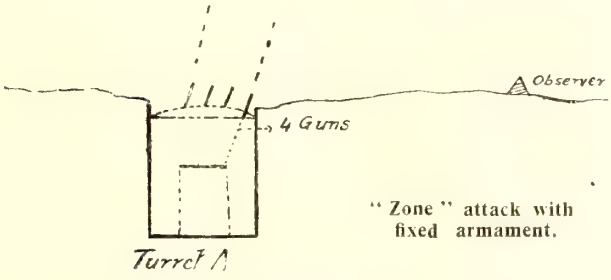


Fig II

Fire Zone Generated in one Revolution of Turret A.



"Zone" attack with fixed armament.

For both purposes some special disintegrating shell, harmless to those below, must be employed.

For field work light and mobile weapons are required. Let us take, for example, three-pounders of very high velocity mounted on motor trucks, working in sections of two. These trucks will carry the detachments, motor drivers, and ammunition. The section commander to be on horse-back for reconnaissance, etc.

These guns to be usable at all angles of elevation and in any direction with great rapidity.

Ammunition to be of two descriptions : (A) ranging shell ; (B) destructive shell.

(A) to consist of shell which will leave a trail of smoke to facilitate observation, or which, on bursting, will throw out a dense cloud of smoke—the purpose of which will be explained later.

(B) to consist of shell whose forward effect on bursting should extend to a depth of well over 1,000 ft., and which will disintegrate before coming to earth.

Either the datum method of attack may be employed or the following method is put forward for use with a special smoke shell :—

On the approach or possible approach of a machine, smoke shell are fired at varying elevations, ranges, and directions into the sky. On bursting, these will form dense clouds of smoke, giving absolute "datum points." They will be dissipated by the wind, but will, nevertheless, form useful guides. If the machine flies through or near one of these clouds its position can be fairly accurately fixed.

Fixed Armament.

When fixed armament is used the problem we are faced with can be more easily solved, as the guns are fixed and are used in peace from the same positions as in war. The method employed may be the same —i.e., the datum method—but the datum points can be fixed in peace once and for ever.

The anti-aeroplane guns may be placed in groups of, say, four, in underground revolving turrets. The top to be armoured with only the muzzles projecting. The observers to be placed in advantageous positions and able to fire the guns electrically at will. Each group of guns will be fired at fixed elevations and ranges, so that their fire zones will be always the same. Each group will thus have its own portion of the sky allotted to it, and the whole of the sky can thus be divided into fire zones.

For example, take turret A of four guns. Fixed elevation of, say, 80 degrees from horizontal, fixed range of, say, 2,500 ft.—i.e., the shells burst at 2,500 ft.—and have a forward effect of, say, 1,000 more feet, always over the same zone,

The observer has a special sight set in advance of his guns to allow for the time of flight of the shells from the muzzle to the point of burst. This sight is, moreover, fixed, and can only revolve in a horizontal plane in conjunction with turret A, and it is so arranged that the observer can only see an aeroplane when it is about to enter the particular danger zone of turret A.

Thus, as soon as the observer sees a machine in his sight he fires the guns electrically. The machine should thus be certainly hit unless it is in the prolongation of the zone—i.e., beyond the forward effect of the shells. Moreover, if the machine is missed by the first round, it has still to pass through the further wall of the zone—i.e., if it is within range.

Fig. 2 is a diagram showing the danger zone :—

(A) At any one position of the guns in turret A.

(B) The zone covered in a revolution of the turret.

The fire zone thus produced is like a flower-pot suspended in the air, the thickness of the walls being the portion covered by the burst of the shells.

It is obvious how this method could be extended to cover the whole of that portion of the sky wherein hostile aeroplanes are a nuisance.

In conclusion, the author begs that these remarks may be taken only as a prelude to opening up an extremely interesting field of discussion and experiment.

One great point must also be borne in mind. To facilitate the work of the artillery, friendly aeroplanes should be at once distinguishable from hostile ones, either by colouring, aspect, or by some secret signal.

It must be borne in mind that every weapon of offence has always given birth to some means of defence, and the fight between the two will only cease with the Millennium.

IN MEMORIAM.

The inhabitants of the district surrounding the hamlet of Willian, in Berkshire, have subscribed a sum of money with which they have caused to be erected an obelisk in the memory of Captain Hamilton and Lieutenant Wyness-Stuart, who were killed while flying to the recent Army manœuvres. The obelisk (of polished grey granite, 8 ft. high) stands on the Wymondley-Willian roadside Among those present at the unveiling on November 27th, was Major Brooke-Popham, Royal Flying Corps, representing the Army Council.

Mr. W. H. Gaunt, First Garden City, asked the Rev. G. B. Gainsford, chaplain, 1st Herts Regiment, to dedicate the memorial. Mr. W. O. Times, town clerk of Hitchin, expressed the desire that the town of Hitchin, to which place the bodies of the brave men had been taken after the disaster, should be associated with that ceremony. Mr. Gainsford then read the Dedication Service, and made a sympathetic and appreciative speech. Major Brooke-Popham performed the unveiling ceremony, and said that he desired, in the name of the Royal Flying Corps, to thank them all for what they had done, not only on the day on which they lost two good comrades, but afterwards. They had taken care to perpetuate the memory of two who might well serve as examples. Englishmen were still as ready to lay down their lives in the service of their country. Mrs. Hamilton, Captain Hamilton's mother, laid a bouquet of white chrysanthemums at the foot of the obelisk.

The Week's Work.

MONDAY, November 25th.

R.F.C. (Central Flying School).—Dull, cold, very strong wind, N.W., and very heavy rains. Lieut. Longmore, R.N., one 5 min. flight, but got tremendous bumping, and did not go out again.

Erith.—Mr. Valentine testing new Vickers monoplane, and flying finely in fog, getting nearly lost over river.

Hendon.—At Blackburn School, Messrs. Buss, Glew, and Laurence Spink had half an hour's practice each in straight flights and landings.

TUESDAY, November 26th.

Brooklands.—At Sopwith's, Mr. Hawker out for a few minutes.

WEDNESDAY, November 27th.

R.F.C. (Central Flying School).—Dull, moderate westerly wind, very bumpy. Officers soon availed themselves of opportunity of flying, although weather far from good. On Avro 406, Captain Fulton, R.F.A., 5 mins. to test machine, Ldg. Seaman Bateman one 5-min. circuit, doing well, and ready to go for certificate. Capt. Fulton with Lieut. Courtney, R.M.L.I, 15 mins. and 20 mins., with Lieut. Atkinson 20 mins., with Ldg. Seaman Bateman 15 mins. practising figure eights; Lieut. Courtney 10 and 8 mins.; Air-Mechanic Higginbottom 20 mins. at 1,500 ft. On Avro 404, Capt. Salmond 15 mins., Lieut. Winfield-Smith 23 mins, Lieut. Martyn 15 mins., Lieut. Abercromby 7 mins., Lieut. Young 10 mins., Capt. Salmond with Lieut. Travers, R.N., 20 mins., Capt. Fulton with Petty Officer Andrews 8 mins., practising landing without aid of engine; Petty Officer Andrews 15 mins., Capt. Fulton with Air-Mechanic Hodgson 10 mins. on practice ground. On Maurice Farman 403, Major Ashmore 27 and 13 mins., Lieut. Pepper 22 and 10 mins., Major Trenchard 12 mins., Lieut. Stopford 10 and 15 mins., Lieut. Cholmondeley 8 mins., Lieut. Hartree 12 mins. and 15 mins., landing with a fine spiral from 1,500 feet; Lieut. Abercromby 15 mins., Lieut. Travers, R.N., 15 mins. On Maurice Farman 415, Lieut. Cholmondeley with Mr. Cholmondeley as passenger 20 mins., Major Ashmore 60 mins., very good flying; Lt. Longmore with Capt. Payne, R.N. Commandant C.F.S., 10 mins. On Henry Farman 412, Major Gerrard 11 mins., Lt. Lushington 10 and 9 mins., Lt. Waldron 25, 11 and 27 mins., Lieut. Shepherd 10, 14, and 12 mins., Lieut. Smith-Barry 5 mins. On Short tractor 413, Lieut. Hubbard 15 and 13 mins. alone, and with Ldg. Seaman Brady 19 mins.; Lieut. Smith-Barry 17 tand 11 mins., Lieut. Shepherd 6 and 4 mins., Major Gerrard 9 mins.

Hendon.—At W. H. Ewen School.—Pupils put in considerable practice when weather cleared. M. Baumann out with monos 1 and 2, his pupils making splendid progress. Messrs. Prosser, McGregor and Zubiaga rolling and straight flights. Mr. Sydney Pickles after fine exhibition displays on 35-h.p. Caudron, handed over to Messrs. L. Russell and W. Warren, who made good straights and half-circuits. Mr. Lewis W. F. Turner then put up exhibition on Caudron.

At Bleriot School, Lieut. Loftus Bryan and M. R. Desoutter out on No. 1 rolling. M. Gandillon flying very well on No. 3.

Brooklands.—At Bristol School.—Mr. Bendall with Lieut. Todd and Mr. Featherstone; Mr. Merriam with latter, who then went alone; Lt. Mills circuits; Mr. Merriam with Lieut. Todd, and latter alone. Mr. Merriam testing new machine, and then with Lieut. Shekleton. Capt. Rickard for tuition with Mr. Merriam; Mr. Featherstone straights.

At Ducrocq School, Mr. J. Alcock good circuits and across country; Mr. McAndrew circuits in brilliant style.

At Percival School, Mr. Humphries flying circuits and figures of 8 on Caudron very well and confidently.

At Sopwith's, Mr. Hawker on A.B.C.-engined biplane up to 4,000 ft. in 17 mins. Good climbing.

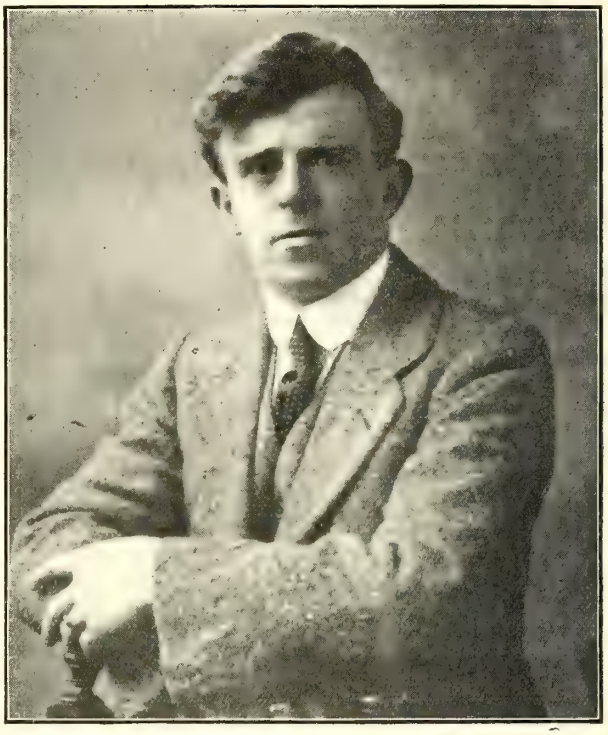
Salisbury Plain (Bristol School).—Mr. England out early, afterwards taking Lieuts. Chiscaneanu and Parvelescu on side by side mono and Lieut. Rees on biplane. Lieut. Negrescu alone on mono. Mr. Sippe with Lieut. Rees on biplane. Lieut. Wall up for certificate, but landed heavily doing damage to machine.

Lark Hill.—Mr. Percival made long flight on Dunne biplane.

Windermere.—Weather unfavourable this week; "Seabird" out to try new combination undercarriage, which will do with improvement, but no damage done.

THURSDAY, November 28th.

R.F.C. (Central Flying School).—Clea. early, sharp frost, bitter cold. Slight southerly wind and misty later, rather bumpy. On Maurice Farman 403, Major Ashmore with Lieut. Pepper 37 mins., very good flying. On Maurice Farman 411, Lieut. Cholmondeley 5 mins.; Major Ashmore 15 mins.; Lieut. Travers, R.N. 12 mins.; Commander Samson, R.N., 8 mins.; Lieut. Hartree 10 mins. On Maurice Farman 415, Lieut. Cholmondeley with Lieut. Allen 40 mins. On Short tractor 413, Lieut. Shepherd 24 mins.; Lieut. Smith-Barry 39 mins., a very good flight, breaking school record of 6,200 feet by reaching 7,000 feet, and then finishing with fine spiral; Lieut. Hubbard 21 mins.; Capt. Risk, R.M.L.I., 16 mins.; Lieut. Hubbard with Ldg. Seaman Brady 18 mins. Lieuts. Shepherd and Playfair arrived from Farnboro' on two 100-h.p. Bréguets, Nos. 210 and 211. Capt. Webb Bowen also arrived on B.E. 206 from Farnboro.



Mr. Tom Grave ("Darracq"), the first music-hall artiste to fly.

Hendon.—At Bleriot School, in intervals of fog, Lieut. Loftus Bryan and M. R. Desoutter rolling on No. 1.

Brooklands.—At Bristol School, Mr. Ewing with Mr. Merriam. Lieut. Mills figures of eight. Lieut. Todd and Mr. Featherstone straights. Mr. Bendall testing biplane. Lieuts. Empson, Todd and Mr. Featherstone all straights. Mr. Merriam with Capt. Rickard and Mr. Ewing straights.

Salisbury Plain.—At Bristol School, Mr. Pizey was on mono. with Lieuts. Parvelescu and Chiscaneanu, Lieut. Parvelescu for first solo followed by Lieut. Chiscaneanu. Lieut. Negrescu on tandem, making three flights reaching 800 ft. and landing with engine cut off. Mr. Pizey over to Upavon with parcel for Central School. Mr. Busteed testing modified 50-h.p. mono, finding it splendid flyer. Messrs. Sippe and Pizey both tried same to Fargo and back.

FRIDAY, November 29th.

Hendon.—At W. H. Ewen School, very little outside work owing to rough weather, but in afternoon M. Baumann had out mono. No. 1. M. Zubiaga and Mr. R. S. McGregor practising before wind rose again.

Brooklands.—At Bristol School, Mr. Merriam testing and later with Lieut. Shekleton.

SATURDAY, November 30th.

Hendon.—At Grahame-White School, Mr. Louis Noel out for 10 mins., in spite of very strong wind, on 80-h.p. Farman biplane, followed by Mr. Marcel Desoutter on No. 6 Blériot monoplane.

Handley Page monoplane left for Brooklands in big wind, covering 23 miles in 14 minutes.

Brooklands.—Mr. Petre, on Martin-Handasyde, did circuits. Mr. Raynham testing new Flanders. Handley Page monoplane arrived from Hendon, but was unable to return owing to engine troubles.

SUNDAY, December 1st.

R.F.C. (Central Flying School).—Cold, south-westerly moderate wind, misty. After lunch snow fell and then heavy rain and thaw. Major Gerrard, R.M.L.I., arrived from Farnborough on Henry Farman No. 420, at 12.10. Time for journey 1½ hours, flying at about 2,500 feet. Capt. Salmond arrived on B. E. type tractor No. 416 from Farnborough at about 12.50. He flew at 2,000 feet and also took 1½ hours.

Hendon.—AT GRAHAME-WHITE SCHOOL, owing to exceptionally bad weather during whole week, no school work till to-day, when Mr. Carr was out on No. 7 Grahame-White biplane doing straights with Instructor Manton, followed later by Lieut. R. S. D. Small on same machine. Mr. Manton out on No. 5 Grahame-White biplane doing circuits, followed by Mr. Louis Noel on 80-h.p. Farman biplane. Weather very cold, and misty. Mr. Marcel Desoutter on No. 6 Blériot monoplane. During the afternoon Mr. Noel took up several passengers.

AT BLACKBURN SCHOOL.—After several days of vile weather came an ideal flying morning, and a lot of good work was got in. Mr. H. Blackburn commenced at 7.30 with short test on rolling machine, followed by Dr. Christie, Messrs. Laurence Spink and Glew, all 20 minutes each, after which Dr. Christie had two turns of 15 mins. each doing straights at 30 or 40 feet, and landing cleanly. Just before lunch Mr. Blackburn out again flying well.

AT W. H. EWEN SCHOOL various pupils out at 8 a.m. under M. Baumann. Lieut. M. W. Noel several nice straights at 20 feet on mono No. 2. Mr. E. T. Prosser on mono No. 1. After school work was finished, Messrs. Sydney Pickles, M. Baumann, and Lewis W. F. Turner out in turn putting up exhibition flights on 35-h.p. Caudron.

AT DEPERDUSSIN SCHOOL.—Pupils took full advantage of weather during fine morning. Lieuts. Mapplebeck, Hooper, and Hawker, making good straights on No. 3 brevet machine, landings being very neat. Lieut. Hooper also flew two circuits and a figure eight, and Lieut. Mapplebeck did a circuit.

Brooklands.—AT BRISTOL SCHOOL, Mr. Merriam with Capt. Powell (new pupil); Lieut. Todd circuits; Mr. Bendall with Capt. Powell, and then with Lieut. Featherstone. Latter alone. Mr. Merriam with Mr. Ewing, and latter four straights alone. Mr. Bendall testing in afternoon. Lieut. Mills good circuits, landing neatly. Mr. Merriam took Lieut. Thompson for first flight.

AT DUCROCQ SCHOOL, Mr. J. Alcock circuits in afternoon till rain stopped flying.

AT VICKERS SCHOOL, Capt. Wood testing biplane, followed by Mr. Barnwell.

Mr. Petre on Martin-Handasyde flying well.

Mr. Hawker out on Sopwith biplane.

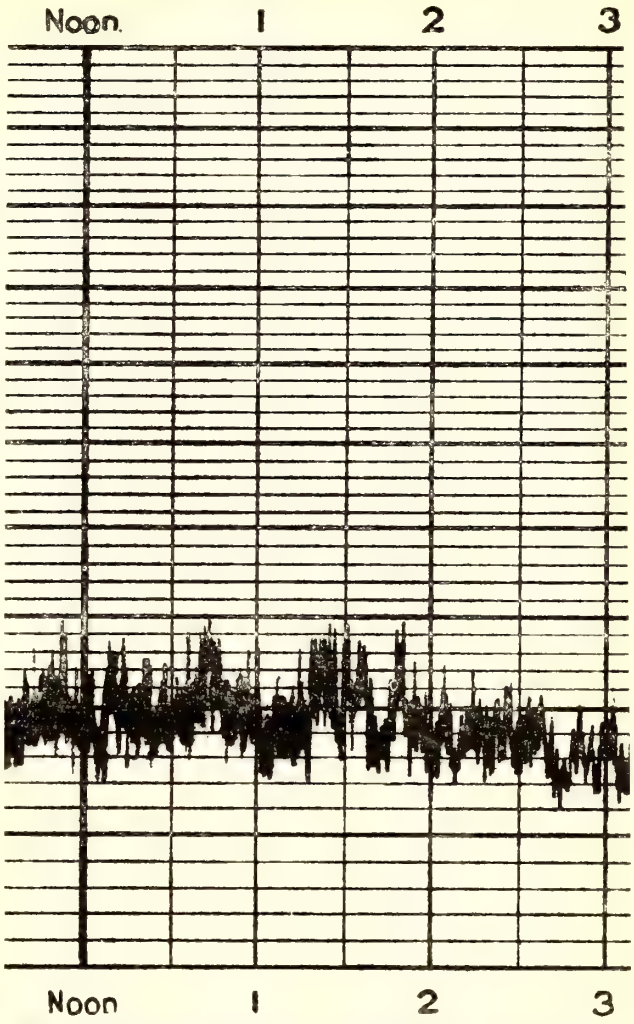
AT FLANDERS SCHOOL.—Mr. Raynham flying for about an hour early, again testing air speed indicator at noon with passenger, and again for half an hour in afternoon.

The Week-end at Hendon.

Despite wind, Arctic cold, rain and fog, there was really good flying at Hendon on Saturday and Sunday. On Saturday Messrs. Noel and Desoutter made exhibition flights, and the Handley Page monoplane flew to Brooklands. On Sunday, Mr. Manton flew excellently on the Grahame-White biplane, and afterwards, much to everyone's surprise and pleasure, Mr. Gates took the machine up, and flew with all his old nerve and brilliance. Mr. Noel took up numerous passengers, Mr. Desoutter gave exhibitions, Mr. Brock did a short flight on the little Deperdussin and Mr. Pickles flew the 45-h.p. Caudron.

A Handley Page Test.

Just to give a demonstration of what the Handley Page machine would do in the wind, it was on Saturday last at midday flown from Hendon to Brooklands with Mr. Fletcher as passenger. The anemometer at Hendon, sheltered as it is by surroundings, registered a wind varying from fifteen to thirty miles per hour in intensity: the average was about 25 miles per hour. Higher up it was probably nearer forty-five miles per hour as a maximum of the gust velocity. The engine was pulling badly, and the aeroplane left the grounds only 150 feet up, and started off for Brooklands. Just over Harrow it was caught in a downward "remou," and dropped



The Hendon anemometer chart during the flight of the Handley Page monoplane to Brooklands. Each cross line indicates two miles per hour of wind. The machine left just after 12.30 p.m.

to 200 feet, on a perfectly level keel, and without the slightest feeling of insecurity or danger to the occupants. Brooklands was reached, and a perfect landing made, the actual time from aerodrome to aerodrome being just under fourteen minutes for the twenty-three miles course taken. This corresponds to a speed of ninety-eight miles per hour. The engine revs. dropped at one point to 900, and the machine cannot have been flying relatively to the wind more than sixty miles per hour, so that the strength of the wind may be gauged from the time that was taken for the flight. In spite of the gusty weather, and the failing engine, the pilot had practically nothing to do when flying. In a word, the stability of the machine was again proven.

A Correction to be Noted.

In the last issue of THE AEROPLANE it was stated that the new type Short biplane, which has been developed from the reconstructed "S.38," had climbed 1,000 ft. in 9 mins. with three people on board, propelled by a 70-h.p. Gnome engine. This would have been by no means a bad performance, it is true, but as a matter of fact the 70-h.p. engine has been fitted since that flight, which was actually done with a 50-h.p. engine, so that the climbing power of the machine is evidently something quite out of the ordinary.

Work on Windermere.

Very little has been done on Windermere for the last fortnight, because all the machines have been laid up. "Water Hen's" engine has been to the Gnome works for a thorough overhaul, and "Sea Bird" has been having an experimental under-carriage fitted in which wheels and floats are combined. Both of them are expected out before long, when further experiments will be tried.

Mr. Hamel in the Midlands.

During the past week Mr. Gustav-Hamel has been making adventurous flights in the Midlands. On Thursday he gave an excellent exhibition at Leicester in very nasty weather. On Saturday he flew from Leicester to Loughborough, taking with him a number of copies of the "Leicester Daily Mercury," which he distributed over the villages as he passed. As there was a thirty mile wind against him he was flying quite slowly, and had time to observe the effects of his distribution. He told the writer that passing over Quorn he was flying low owing to the fog, and could see distinctly the scramble for the papers as they came down in the street. As the wind was much on one side he was able to drop the papers from outside the villages that they drifted in with the wind.

On this journey he suffered much from engine trouble, having to vary the mixture every few minutes as he flew into patches of damp fog and out again into the hard dry frost. He said that the experience was quite new to him, and very unpleasant, as the engine stopped firing altogether at times. In places the fog was so bad that he lost sight of the ground entirely at 200 feet.

In the afternoon he did some very fine exhibition flights at Loughborough. This week he will be flying at Kettering.

The R.F.C.

(With apologies to Mr. Kipling.)

I wish my mother could see me now, in an overall caked with dirt,
And a safety helmet jammed on my head, and oil soaking through to my shirt,
Seated alone on a Somebody's 'plane, full of thoughts of the good times to be.
I used to be in the Navy once,
Guards, Engineers, and the Factory once,
Lancers, Marines, and Artillery once,
But now I'm R.F.C.
That is what we are known as, that is what you must yell
If you want working parties for aircraft, or candidates eager for Hell.
Fuselage fitters, experts on Gnomes, or even on A.B.C.'s,
Turn out the "Daily Mail's" "airmen,"
Roll up the R.F.C.'s.

My hands are gritty with dust and grease, my clothes are a sight for the gods;
The propeller's roar bites into my ears, and I use bits of waste for wads;
And I don't know what exact racket we're on, or who is in charge of me.
I was sent from the School to the Factory once,
Had a trip to the North of Scotland once,
Upavon, Farnboro', Eastchurch once,
For now I'm R.F.C.
That's what the papers call us, we are the "nuts" they admire;
We keep up the name of England's might—or anything else you require—
Do you want to get out a Sopwith, Cody, or p'r'aps the giddy B. E.?
Then borrow a few of the "bird-men,"
Trot out the R.F.C.

Claud H.

The Amende Honourable.

The General Aviation Contractors, British agents for Emaillite, have recently shown the writer a letter from Jacob Lohner and Co., makers of the machine on which Lieut. von Blaschke broke the world's height records, pointing out that the dope used on the planes of this machine was "Emaillite," and not another make, as was stated recently in The Aeroplane.

Accompanying this letter was another from the headquarters of the Austrian Air Battalion, stating that "Emaillite" has been ordered for use on all planes built for service with the Corps. It is, of course, well known that "Emaillite" is used on a number of other successful machines, including some of the machines built at the Royal Aircraft Factory.

A Neat Car for Aviators.

One of the most successful foreign cars in this country is the Adler, which is sold by Morgan and Co., Ltd., of 10, Old Bond Street. On several occasions in the past twelve months the writer has had opportunities of observing the work of these cars, in various sizes, and he can safely say that in some fourteen years' experience of motoring he has never come across anything better. Even in the smallest sizes the Adlers are beautifully sprung, and the high-speed engines are excellently balanced, so that on a long journey one travels in the greatest comfort. On one of the little 12-h.p. two-seated cars, a party of three (of whom the writer was one) made the journey to Salisbury Plain and back in the day with rapidity and comfort, the car taking all the hills in excellent style. It is not surprising to hear that the firm did excellent business at the recent Olympia Show, for the new models are even more taking than those of 1912. A detailed description of some of the leading features of the latest type will be given in the next issue of The Aeroplane, but, meantime, one can strongly recommend anyone on the look-out for a high-grade, fast, and comfortable car to investigate the claims of the Adler.

Tabloid First Aid.

The writer has recently had occasion to use one of the large-sized "Tabloid First Aid" outfits, supplied by Messrs. Burroughs Wellcome & Co., and desires to bear witness to the fact that these outfits are the most perfect miniature surgeries imaginable. Everything is so beautifully arranged that it is almost worth while hurting oneself simply for the fun of using it. Certainly no aviator or motorist should be without one of these outfits, which take up practically no room, weigh nothing, and may be the means of saving very serious after-effects.

Aviation in Ireland.

The proprietors of the Dublin Aviation School, late M. G. Loder and Co., 25, Bachelor's Walk, intimate that Mr. M. G. Loder is no longer connected with that concern as from November 4th, and that by agreement he cannot be interested in any way with aviation in Ireland.

Aeronautical Accessories.

"Aeronautical Accessories" are now in a position to supply anything in the way of aviation requirements from stock, and are making, among other things, a speciality of goggles that are non-inflammable, non-crackable, non-breakable, and are perfectly clear, another great feature being that the aviator can wear his own glasses for correcting vision at the same time with the greatest comfort.

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1D WEEKLY

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VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, DECEMBER 12, 1912. No. 24.

AN AMERICAN HYDRO-AERO TOURIST



By courtesy of the American "Aero and Hydro," of St. Louis, we are able to give this picture of Mr. Antony Jannus on his Benoist hydro-aeroplane, who is making a 2,000 mile tour down the Mississippi to New Orleans. At the time the photograph was taken he had covered about 900 miles and was going strong.

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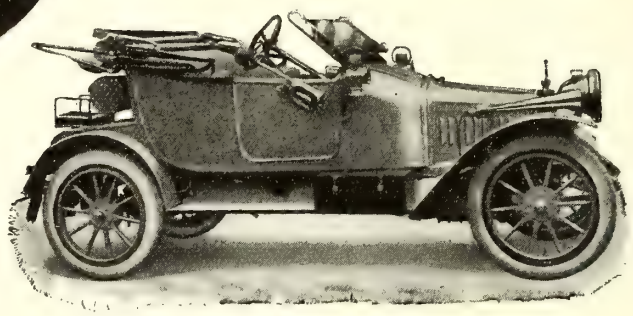
"Saturday was no exception to the rule. The day was a dismal one. Low-lying clouds, a thick mist, and withal a sharp gusty wind in the upper reaches, combined to make the conditions as unfavourable as possible. It was with some surprise, therefore, that we learned, shortly after noon, that the Handley Page monoplane, carrying a passenger in addition to the pilot, had started from Brooklands, where it had been flown the previous week, on its way to Hendon. The journey proved an adventurous one; in spite of the 20-mile wind, the ground was lost from sight in the mist immediately after the start. The monoplane rose to 400 feet, and was thereafter steered by compass. The only landmark seen during the flight was the spire of Harrow Church looming out of the fog. Even from the Welsh Harp, less than a mile away, the aerodrome was invisible, and it was only after circling for some time that the pilot managed to obtain a glimpse of the aerodrome and to effect a landing.

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SOME SUGGESTIONS FOR MILITARY MACHINES.

It would certainly be a great advantage to the aeroplane industry if it were possible for the military authorities to issue a detailed specification of what they really want in a military machine, but is is obvious that it might be inadvisable to do so, simply because it would indicate too precisely to other powers the particular qualities which are most desired by us in our military aeroplanes, and so it may be better to buy machines built to designs which have been privately submitted to and approved by the War Office officials. On this account it may be well to set down some of the points which appear most desirable in military machines according to the ideas of those with whom the writer has spoken on the subject.

Though, of course, it must be understood that these points by no means indicate the official view, it is fairly certain that they do, at any rate, include certain arrangements of the various parts of a military aeroplane which are likely to find favour, and constructors including such arrangements in their designs will probably find that they are not disapproved.

First of all it must be remembered that there are two distinct types of aeroplanes required for the Army—the scouting type and the fighting type. Now the fighting type must primarily be intended, at any rate for the time being, for the use against possible visits of foreign dirigibles, and, therefore, it must at all times have a speed exceeding that of the best foreign dirigibles by at least twenty miles an hour. The modern Zeppelin does fifty miles an hour, therefore, to be of any use against it an aeroplane must do seventy miles an hour. The Zeppelins now on the stocks are designed to do sixty miles an hour. Consequently, a fighting aeroplane must then be capable of somewhere about eighty miles an hour.

In order to be useful as a chasing machine it must obviously have a clear field of fire downwards and forwards. For such a purpose, of course, the Henry Farman type seems to be indicated, but it will be remembered that the judges in the Military Aeroplane Competition expressed their approval of the Mersey type of machine, which even in its primitive form provided a fairly clear field of fire in front, the propeller being at the back. Therefore, it seems not at all improbable that one might evolve a highly satisfactory fighting machine by putting the pilot and passenger fairly well in front of the planes with the engine a little further in front and decidedly below them. This would give a clear field of fire forwards and sideways, the pilot and passenger would be sitting fairly high up, so as to avoid having the centre of gravity too low down, and thus it would also be possible to fire backwards and slightly sideways over the trailing edge of the lower plane.

The ability to do this is quite important, for there is considerably more difficulty in aiming forwards when flying fast than there is in aiming backwards. We have the authority of the late Hubert Latham for this, for he said that when he shot the famous duck he took several shots at it over the front of his machine, but missed it every time till he passed it and fired backwards at it.

Of course, the trouble in nearly all machines, especially in biplanes, is that there is always the danger of hitting struts and wires if one attempts to fire backwards in this way, but the big armoured biplane carrying a special gun might be made quite useful so long as the gun had a range downwards and forwards clear of the front edge of the planes. In a smaller machine, either a monoplane or a biplane, the French Deperdussin and tandem Blériot type permit of a very good arc of fire downwards and forwards on each side of the fuselage as well as backwards and upwards.

The writer ventures to suggest entirely on his own account that quite a good deal might be done with a monoplane in which the engine was placed low down, the propeller behind, and the pilot and passenger in a kind of streamline conning-tower right on top of everything else, so that the upper wing wires would go up to the sides of this conning-tower below the line of fire, and the fire-arm used by the passenger would have an arc of fire extending the whole way round except for the segment of the circle guarding the propeller. It ought to be possible to arrange to fire downwards through special panels in the wings or in the floor, but it is quite probable that a sufficient downward angle could be obtained either by banking the machine fairly steeply, or by firing when the machine is diving or climbing. Of course all these fighting machines must of necessity have very great climbing power as well as horizontal speed, so that very high powered engines seem to be indicated, and it is quite likely we shall see machines of 200 h.p. and over as a regular thing in the next twelve months.

Right at the opposite extreme from these big fighting machines comes the small single-seated scout or despatch machine, and here again it is necessary to have a really good view downwards, for if the air scout of the future is to be compelled by hostile artillery to fly at about 6,000 feet, he is not going to be able to see very much unless his view is practically vertical. It is hard enough to see a

man a mile away against a skyline, and it very much harder to see him a mile vertically below one against dark ground, so that if the build of the machine compels one to look forward at an angle of 45 degrees or so the difficulty of seeing troops will be greatly increasd. The writer, therefore, ventures to suggest that the maker who produces a really fast single-seated machine in which the pilot is fairly well protected against ordinary accidents and yet has a good view below him, is fairly sure of getting good business.

Of course, the old Antoinette and Hanriot types gave as clear a view as one could wish, but the exposed positions on those machines would be quite impossible at speeds of seventy or eighty miles per hours plus the slip stream of the propeller. Therefore, in this category also a modification of the Mersey type seems the best way out.

One would like to impress strongly on all aeroplane designers who wish to obtain Government orders, that their best plan would be to get out sketches of various types of machines and submit them to the military authorities before spending money on the actual production of machines. If the type of machine is approved then will be the time to go ahead with the building of it, after which, of course, stress diagrams and so forth will have to be submitted before definite orders are placed on the strength of the sample machine's performance.

There is no doubt that before many months are over, and possibly before many weeks, the Army Contracts Department will be compelled to place orders for a very large number of machines, so that makers who have ideas for new types would be well advised to get their designs well forward and submit them at once, so as to make sure of having a chance of standing in for these big orders when they are placed.

A Word to the Press.

It is said that there is always hope for a thoroughly lazy man, because if one can once get him to work he will go on working for ever because he is too lazy to stop.

On much the same principle if one can once get an Englishman to move he will go on moving with the irresistible force of an avalanche—probably that is how the Saxons and Angles managed to conquer the biggest part of Britain and turn most of it into that unimaginative, slow-witted England we all know to our sorrow. A similar system seems to govern the House of Commons—of which Oscar Wilde said: "Only those who look dull ever get into Parliament, and only those who are dull ever succeed there,"—a true word, after making allowances for those who are there with ulterior motives.

This typical mental inertia is, however, a dangerous thing to play with, for the trouble is that one may get the English mind moving and then find it difficult to stop it at the right point. It is like driving a goods train; the engine has nearly as much trouble to stop it as to get it started. So, if the English people get themselves thoroughly roused by the Press into an enthusiasm for dirigibles, and if the ordinary members of the House of Commons also become infected, we shall find ourselves committed to an airship programme which will do more harm than good.

It is important to remember that even if we had a Zeppelin or a Schütte-Lanz over here to-day to copy we could not have even one new one fit for use inside the next eighteen months, and, as the main object of all our defence problems is to be prepared for trouble with Germany, it is obvious that our chief idea should be rather defensive than offensive armament.

Therefore it seems important that instead of spending money on trying to procure a fleet of fast and powerful dirigibles in the immediate future we should turn our attention to the production of anti-aircraft guns, and of aeroplanes sufficiently fast and powerful to be useful as destroyers of dirigibles. The writer hopes, therefore, that his *confrères* of the daily Press who are sufficiently interested in aircraft to read The Aeroplane regularly, will see the force of this argument and will do their best to impress on their readers the fact that we have no special artillery able to deal with aircraft, and that we have practically no aeroplanes fit for use against big dirigibles, but that a sufficient supply of both guns and aeroplanes can be produced in half the time it would take to build one satisfactory dirigible.

The Sheerness mystery has served its turn; let us remember the visit as a useful warning; but the attempt to work up another mystery "story" over the poor little "Beta's" visit to Portsmouth was a dismal failure, so it would be better to teach the public the need for other forms of aerial defence.

The present state of the Royal Flying Corps is as serious a menace to the success of our Expeditionary Force as was the lack of cordite which caused the fall of Sir Henry Campbell-Bannerman as War Minister years ago. Colonel Seely, the present Minister of State for War, is not to blame; in fact, we owe him much, for it was only by practically threatening to resign when he was Under-Secretary that he forced the Treasury to do as much as they have done in the way of supplying funds for the equipment of the Flying Corps. Mr. Spencer-Churchill has also done his best at the Admiralty to help things forward. Both of these Ministers would doubtless spend very much more on the Flying Corps if they had free hands in the matter of finance. Nor are the practical people at the War Office to blame, they are anxious enough to order aeroplanes as fast as they can get them delivered.

Money is still the obstacle. The Treasury must be forced to permit the spending of far more money than was allowed in this year's Naval and Army Estimates, and the Army Contracts Department and the Master General of the Ordnance—we shall soon have a new one—must be induced to hurry things along.

We want new landing-grounds, we want many more sheds, we want quantities of aeroplanes, we want some dirigibles. If the Press of the whole country will take up these points and hammer away at them between now and the presentation of the Estimates to Parliament, we shall be a lot better off by this time next year—unless we go to war between

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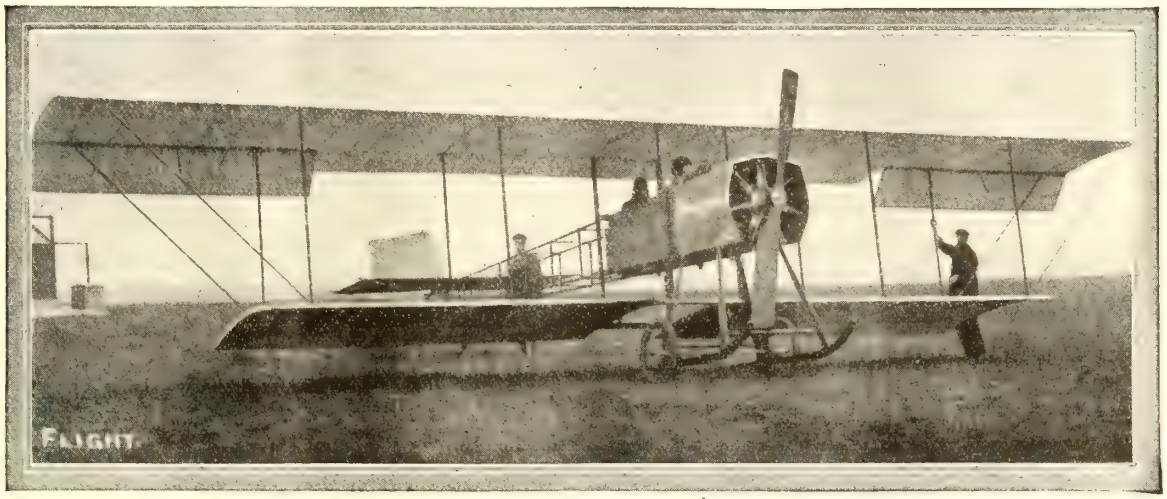
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now and then, in which case, of course, for practical purposes the Royal Flying Corps does not exist.

Meantime, let us go easy on the subject of dirigibles. We cannot have them in quantities in time to be useful, so let us do our best to avoid causing a repetition of such fiascos as the Clement-Bayard affair, and the wreck of the "Mayfly." If we have sufficient defence against foreign dirigibles we may ourselves evolve, under shelter of those defences, a dirigible better than anything abroad, and then will be time enough to think of building big airships in quantities. Let us by all means proceed with the evolution of such a machine, but let us first of all make sure of having enough fast aeroplanes to protect us against visiting airships.

Questions in the House.

Those Members of Parliament who have the welfare of our aerial defences at heart have continued their good work this week. The answers to the following questions are in several cases considerably enlightening, especially those relating to Army monoplanes. It will be seen that in almost all cases, the information given under pressure confirms that given during the past few weeks in The Aeroplane.

Aviation.

Mr. Eyres-Monsell asked the First Lord of the Admiralty whether the trials of the experimental airship "Willows" have proved satisfactory; and, if so, whether the Admiralty intend to proceed with the building of airships of practical value.

Mr. Churchill: The trials of the small Willows airship have proved quite satisfactory for the limited purposes for which it is intended.

Mr. Eyres-Monsell: Would the right hon. gentleman answer the second part of the question?

Mr. Churchill: I said that I did not desire to make any statement on the air programme at the present time, as I stated last week in reply to a question.

Mr. Joynson-Hicks: May I ask why we cannot have the Naval air programme when we have the Army air programme?

Mr. Churchill: The future Army programme for the next year will, I presume, be announced when the future Army Estimates are put forward; and so will our future programme, so far as it can be properly discussed.

Mr. Meysey-Thompson: Is there any present naval air programme?

Mr. Churchill: It is very remarkable the amount of progress that has been made in naval aeroplanes during the present year.

Sir C. Kinloch-Cooke: Is it not the fact that the right hon. gentleman stated in this House that he had been in consultation with the right hon. gentleman the Minister for War and had settled the programme with him?

Mr. Churchill: No.

Sir C. Kinloch-Cooke: It was stated.

Mr. Churchill: We are now coming on to the programme of another year. Very considerable developments in naval aviation have taken place during the course of the present year.

Sir C. Kinloch-Cooke rose——

Mr. Speaker: The hon. member can put down any further questions.

Mr. Eyres-Monsell asked whether the Committee on Aircraft have come to any conclusion in respect of the relative merits of rigid and non-rigid airships; and how many rigid airships are built, building, or projected for Great Britain?

Mr. Churchill: The deliberations of the Air Committee and their recommendations are confidential. The question of rigid airships is receiving attention.

Mr. Fell asked if the Admiralty have decided to erect a garage for dirigible airships and aeroplanes on the East Coast, or somewhere in East Anglia where it will be available for aircraft accompanying ships in the North Sea?

Mr. Churchill: All these matters are being studied, and I am not in a position to make any statement upon them at present.

Mr. Joynson-Hicks asked whether the Navy only possesses one airship; and whether this machine will only lift two persons, and cannot exceed thirty miles per hour in a calm.

Mr. Churchill: The speed of the small naval airship, which is used for instructional purposes and is the only one we have at present, is just over thirty miles per hour.

Mr. Joynson-Hicks: Are any others building for the Navy?

Mr. Churchill: I do not desire to make a statement on the subject at the present time. I will make a statement on the subject when the Estimates are presented.

Mr. Joynson-Hicks asked whether any of our naval aviators have ever flown a machine which is capable of a speed of 70 miles per hour with a helping wind.

Mr. Churchill: Yes, sir.

Mr. Joynson-Hicks asked the First Lord of the Admiralty whether the public interest will permit him to state the fact that we have no naval aeroplane capable of exceeding the speed of the newest Zeppelin by twenty miles an hour?

Mr. Churchill: We have in the Naval Wing several machines that can exceed the speed of the latest Zeppelin.

Mr. Joynson-Hicks asked the First Lord of the Admiralty whether, besides one new naval Zeppelin, one new military Zeppelin, two passenger Zeppelins, and the Schütte-Lanz experimental dirigible, Germany has several other effective, if slightly slower, Zeppelin airships belonging to the Army within 300 to 400 miles of the British coast.

Mr. Churchill: I am now informed that there are two other Zeppelins belonging to the Army, in addition to those mentioned in the question. Of these, Z.I. was completed in 1905 and reconstructed in 1911, but I am informed that, so far as is known at the Admiralty, she has not been flying recently. The other, Z.III., according to the German Press, was taken over by the military authorities at the end of July.

Army Monoplanes.

Mr. Joynson-Hicks asked why the Army thinks it necessary to appoint a Committee to consider the question of flying monoplanes when the Navy does not; and whether the difference of opinion between the military and naval wing of the Royal Flying Corps is due to the advice of civilian experts being taken by the Army.

Colonel Seely: The Committee mentioned was assembled in order to investigate the two accidents to monoplanes which occurred during the manœuvre period, and to make recommendations with the view of minimising the risk of accident in future.

Mr. Joynson-Hicks: Is not the right hon. gentleman aware that the Navy is still flying monoplanes? Why cannot the Army be allowed to do so?

Colonel Seely: In view of the two very distressing accidents which happened within a few days, it was very possible there might be structural defects in the monoplanes in the possession of the Army. I therefore took the responsibility of ordering an inquiry, and of stopping the supply until we had found out the facts.

Marquess of Tullibardine: If all orders for monoplanes and flying machines have been stopped since the manœuvres, is this according to the desire of the military experts of the Flying Corps?

Colonel Seely: I took the fullest expert advice before I took the action I did.

Mr. Joynson-Hicks: Could not the hon. gentleman expedite the findings of the Committee, seeing how seriously we are behind other countries?

Colonel Seely: It is always dangerous to try to hurry a Committee which is dealing with matters of life and death. But I believe the Committee are on the point of reporting.

Cody's for the Army.

The Cody machine which won the Military Aeroplane Competition has now been officially accepted by the Army, and the second machine ordered from Mr. Cody is being assembled. Both these have been ordered with Austro-Daimler engines and one gathers that the newest engine has been fitted to the Military Trials machine, while the actual Military Trials engine is to go into the new machine. It will be interesting to see whether the old machine with the new engine does better than before, and whether the new machine with the old engine performs better still. It is hoped that before long we shall hear something further about the company which it was proposed to form to finance Mr. Cody in building the entirely new and absolutely automatically stable aeroplane of which he has spoken recently. The writer has sufficient faith in Mr. Cody to be quite sure that if he sets out to build such a machine it will be built, and will be a success.



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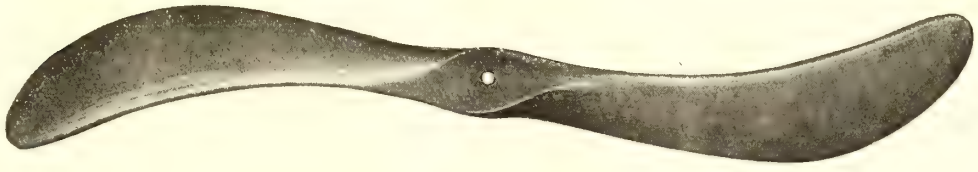
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Military Aerodromes *(Continued)*.

BY W. E. de B. WHITTAKER.

If the true spirit of patriotism can be roused for a space in this country, there is much that can be done at comparatively little cost. Let each town at intervals of forty miles along certain stated routes of strategic value allocate a piece of ground to the service of military aviation, erect thereon one or more sheds, appoint a mechanic to take charge, and before many years have passed that monetary profit which has divinity in the eyes of the merchant, will come as surely as the millennium.

For the moment aviation is the affair of governments. The risk never quite absent from flying, and the uncertainty of the whole science has deterred the average civilian from taking any part, active or passive, in aviation. There is no reason why he should. There is a commendable absence of a desire for publicity in the British spirit. Money may attract an inhabitant of the United Kingdom, but in most cases neither celebrity in the "Times" nor notoriety in the "Daily Mail" appeals to him. Thus aviation has no prominent place in the affections of the public. As time drifts by this will alter. Flying will no longer be singularly dangerous, and certainty will oust uncertainty. The aeroplane will have its value in the world of commerce. But this is the natural course of affairs, and something must be done to accelerate it. The institution of local aerodromes would no doubt have this effect. People all over the United Kingdom would feel they had personally something at stake, and though the aviator cannot aspire to the popularity of the professional footballer, yet he might take second place in the hearts of the people.

The institution of local aerodromes would also pay. If a network of reasonable density were formed there would be a great increase in the number of cross-country flights. The great deterrent at present is the lack of proper landing grounds. There is nothing pleasant in leaving Hendon by air for Norwich if one has to search for a suitable field at the latter place and then take the risk of having made a mistake. In addition, there is compensation to be considered. The pilot has to indemnify the occupier against damage caused by unruly crowds tearing down his fences in order that they may be able to inscribe their names and scurrilous epithets on the white wings of the aeroplane. There is nothing at present to encourage cross-country flying, but the creation of landing grounds would alter everything. Aviators would then be sure of finding suitable resting places at proper intervals. Machines could be placed in well-built sheds at night secure from damage by adverse weather or the malicious ingenuity of the idle poor. From a travelling mendicant feeding at the tables of the landed proprietor the pilot would become an ordinary traveller staying at the usual hotels.

Each pilot landing at such an aerodrome would pay proper garage fees for the time he stayed. Sales of oil and petrol and spare parts would also bring money. The Government could make their own arrangements. Recognised aerodromes might receive an annual subsidy in lieu of individual payments by officer pilots who might land on them from time to time. It is simply a question of the passage of the years. Whatever steps may be taken aviation is bound to come to this point, but concerted action in the country can do much to help.

The road system of the world is not due to the haphazard strolls of the aboriginal inhabitants, but is largely the result of military necessity which demanded easy access to strategic points. Our great roads owe their inception to the untiring industry of the Roman army of occupation. Mile after mile the long white lines of road stretch in undeviating directness to the points desired. Natural obstacles were not avoided—they were overcome. It fell to later, less hardy generations, to adopt the winding course, and to-day if one desires one can see in places the old Roman road travel across hill and dale in splendid isolation, whilst the way of the present twists and turns miles away that steep gradients may be avoided. The art of war never alters in its principles, and the road system laid down by Cæsar and his legions is as strategically sound to-day as it was in the centuries of the past. And because of this, and the marvellous straightness of the roads, the same network might be used as a basis for the new system of aerodromes so far as England is concerned. The Great North Road, the Holyhead road, the Bath road, the Portsmouth road, and other historic routes may easily form the framework for the new air system.

A well equipped aerodrome should be formed at the headquarters of each of the great commands—London, Colchester, Aldershot, Chester, York, Edinburgh, and Dublin. All other aerodromes and landing grounds



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should be linked up with the headquarters' grounds. Except at the great centres all that is required at the great majority of places is sufficient space for an aeroplane to alight and rise again, and a shed or two for housing. Such grounds would be used by trained pilots and not by pupils. Training could proceed as at present on the public aerodromes.

The following are a few suggested chains of aerodromes :—

1. London to York : Hendon, Hitchin, Biggleswade, Huntingdon, Peterborough, Grantham, Newark, Doncaster, York.

2. London to Chester : Hendon, Dunstable, Towcester, Coventry, Lichfield, Market Drayton, Chester.

3. London to Bath : Hendon, Brooklands, Kingsclere, Devizes, and Bath.

4. London to Portsmouth : Hendon, Brooklands, Haslemere, Petersfield, and Portsmouth.

From these and other great lines certain circuits could be marked off to take in counties outside the large triangle. For instance, from Peterborough to Hendon by King's Lynn, Fakenham, Norwich, Ipswich, and Colchester, thus opening up Norfolk, Suffolk, and Essex.

The respective ingenuity of the individual reader will certainly suggest innumerable possible lines.

Naval and Military Aeronautics.

GREAT BRITAIN.

Captain John H. W. Becke, the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment), to be a flight commander, and to be seconded. Dated October 28th, 1912.

Captain E. G. R. Lithgow, R.A.M.C., has been appointed Medical Officer of the Central Flying School, Royal Flying Corps, Upavon.

Lieutenant F. G. Small, the Connaught Rangers, has been selected for duty with the Royal Flying Corps, as also has Captain F. St. G. Tucker, the Worcestershire Regiment.

Captain J. L. Lucena, R.F.A. (Special Reserve), has been appointed to the Royal Flying Corps on probation.

Second Lieutenants (on probation) H. de G. Warter, E. K. Davies, G. de Havilland, and L. S. Metford have been appointed to the Military Wing, Royal Flying Corps.

Admiralty Appointments, Royal Marines.—Capt. C. Risk, R.M.L.I., to the "Actæon," for Naval Wing of Royal Flying Corps, to date December 6th. Lieutenants.—G. Wildman-Lushington, R.M.A., and I. Courtney, R.M.L.I., both to the "Actæon," for Naval Wing of Royal Flying Corps, to date December 6th.

Lieutenant R. Fitzmaurice, R.N., to "Actæon," additional, as Squadron Commander, Royal Flying Corps, for wireless telegraphy duties with aircraft, to date December 4th.

Lieutenant P. A. Shepherd to the "Actæon," additional, for Royal Flying Corps, to date December 5th.

Assistant Paymaster A. A. E. Robinson, to the "Actæon," additional, for air department duties, to date December 5th.

Paymaster E. R. Berne, to the "Actæon," additional, as flying officer, to date November 23rd.

FRANCE.

On November 28th an official trial was made of the Moreau stabiliser at Brie in the presence of Lieutenant Saulnier, of the military laboratory at Chalais-Meudon. M. Moreau piloted a machine fitted with his stabiliser, and was accompanied as passenger by the inspecting officer. Despite the high wind, the inventor flew for long spaces of time without touching the controls. The trial was highly successful.

On December 7 the French Navy took delivery of a Voisin hydro-biplane (100-h.p. Gnome), type Canard. It was put through its reception trials by Rugère.

During the recent public subscription for the purchase of military aeroplanes the inhabitants of Roanne subscribed over £600 on the condition that a hangar should be erected near their town. This is now about to be done.

M. Guillaux, the well-known Clement Bayard pilot, has taken his military brevet on a monoplane of that make. On December 7 he made a circuit of Villacoublay, Chateaufort, Buc, Saint Cyr, and Issy-les-Moulineaux.

The French Army accepted delivery on December 7, at Buc, of four Blériot monoplanes (two taxi pingouin type and two Anzani).—W.

GERMANY.

The Ministry of War has placed orders for fifty monoplanes and biplanes of German construction, all to be fitted with engines of greater power than eighty horse-power. These machines are to cover wastage at Metz, Strassburg, Cologne, and Doeberitz.

A new military aerodrome is to be formed at Niederneuendorf.

Whilst alighting on the water on a hydro-aeroplane at the naval aviation station of Putzig, Captain Bertram overturned his machine and was only rescued from drowning by the greatest of good luck, the attendant boat being close at hand.

It is expected that an order for twenty rigid dirigible balloons will be given to the Zeppelin firm for execution during the coming year at their Potsdam and Friedrichshavn works.

The Ministry of Marine have the intention of forming a special naval aeronautic corps at once, consisting of 199 officers and men. This corps will have complete charge of all naval aircraft.

The Ministry of War is about to take delivery of a new Parseval dirigible of 10,000 cubic metres and 400 h.p. (two motors). "Parseval II" and "Zeppelin IV" will also be delivered shortly, and the Zeppelin "M.4" will be restored to the establishment after repairs. The Government will then have twelve dirigible balloons of the latest type.

On December 2nd the dirigible (Zeppelin) "Viktoria Luise" made a circuit of Frankfort, Speyer, Mannheim, Frankfort. This is its 226th journey during the year, and is its last for the present. On board were several officers of high rank.—W.

The following statistics permit an insight into the gigantic progress made in Germany by aeronautics and aviation, and may be a lesson to Cabinet Ministers who assess the aerial fleet in the Empire as being easily countable on the fingers of one hand. Why, if this statement were true, Germany should possess twenty-seven completed sheds for dirigible airships, would be an interesting problem to solve. As, however, the airships, taken all in all, are well up in the twenties, the above figure is not surprising. A number of hangars are the property of the Delay Company, which promotes the big passenger tours with the Zeppelins from Frankfort and Baden-Baden, and has erected these sheds as stations. Of the twenty-seven, seven are in the immediate vicinity of Berlin; Hamburg, Bitterfeld, and Friedrichshavn have two each; then follow with one each, Baden-Oos, Cologne, Dusseldorf, Frankfort, Gotha Kiel, Koenigsberg, Munich, Mannheim, Metz, Potsdam, Strassburg, Thorn, and Wanne. The number of aviation schools in Germany now totals forty-five, twenty-one separate schools being collected at the Berlin-Johannisthal flying-grounds; there are three at Liepsic-Lindenthal and two each at Berlin-Teltow and Frankfort-Rebstocks. Other towns and cities able to call an aviation ground with a regularly established school their own are Bonn-Hangelarer Heide, Berlin-Schulzendorf, Bork-Mars, Breslau-Gandau, Gotha, Gelsenkirchen and Essen, Leipsic-Drilliground, Munich-Oberwiesenfeld, Mayence-Grosser Sand, Mulhouse-Habsheim, Kiel-Kronshagen, Hamburg-Wandsbek, Magdeburg-Burg, Muenster-Tottenheide, Wanne-Herten. To these must further be added the military aviation stations at Berlin-Doeberitz, Metz-Frascaty, and Strassburg, as well as the naval school at Dantzic-Putzig. Another military school is to be formed at Posen, commencing on April 1st, 1913. The town is discussing the question of erecting barracks for the new troops.

Although the German "Military Political Correspondence" states the passing of an Aerial Fleet Bill to be an uncertain contingency for 1913, yet it is, nevertheless, able to formulate the various points that would go to make this Act—such as the determination of a minimum number of dirigible airships and regulations for their upkeep in times of peace, reserve airships and the use of privately owned airships for manœuvre and war purposes, and the adequate remuneration to be made their owners, and, finally, laws governing alterations, repairs, and the replacing of antiquated or destroyed vessels. The erection of sheds and hangars naturally would be fittingly considered in the Act. The setting-up of the skeleton Act has been entrusted to the new departmental chief of the Traffic Troops in the War Office, Lieut.-Colonel Oschmann.—B.

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ITALY.

M. Paulhan is now at Venice to examine the Curtiss hydro-biplanes he has sold to the Italian Government. He has already made long flights on each of the four machines. The commandant, Captain di Filippi, has not yet arrived.—W.

GREECE.

On November 30th M. Maurice Farman put another biplane of his construction through its trials, and it has now been delivered to the Grecian Government.—W.

RUSSIA.

Naval Lieutenant Dybovsky, who some time ago made a magnificent flight from Sevastopol to Petersburg on a Nieuport monoplane, is now constructing a monoplane fitted with wireless telegraphy and two mitrailleuses. A photographic outfit is also attached.

A Captain Popov is also experimenting at Gatschina with an all-steel aeroplane fitted with a 5-h.p. motor-cycle engine.

An army order has been issued defining the organisation of the aviation section of the officers' aerostation school. It is to be under the command of an officer of the rank of colonel, assisted by one officer (ranking as major in British Service), four subalterns, and four N.C.O.'s. The course lasts from April 1st to November 1st. Fifteen officers a year are to be attached for training, and they are to be given instruction in the construction and care of aeroplanes, as well as in the art of flying. At the end of the course successful officers will be classed as aviators, and will receive pay and allowances as such. The section has ten aeroplanes.—W.

Russia has placed an order for six biplanes with the German Wright Company, the machines to be fitted with N.A.G. motors.—B.

CONTINENTAL NOTES.

France.

M. Georges Legagneux continued the series of "L'Aero" interviews by relating his recent moving experiences on November 28. He speaks of the great flight he made in a high wind from Mezieres to Douai during the Circuit de l'Est and of his second attempt on a Farman biplane with Martinet as passenger on the Paris-Brussels flight. Aided by the wind he flew at a speed of seventy miles an hour and was forced down at Compiègne.

Garros is still at Tunis awaiting a favourable opportunity to attack the height record. He is in the meantime giving several exhibitions under the patronage of H.H. the Bey.

The banquet given by the Aero Club de France at the Quai d'Orsay in honour of the double Gordon Bennett victory took place on December 6. All those whose names are intimately connected with aviation were present.

M. Tetard, whose name will be remembered as a Bristol pilot, is now an instructor at the Sommer School at Mourmelon. On December 5, accompanied as passenger by Madame de Laroche, he made a long flight on a Sommer biplane (70-h.p. Renault engine). Leaving the aerodrome, they passed over Reims, Epernay, Nogent-sur-Seine, Vitry le Francois and Chalons-sur-Marne. The whole journey was over 290 kilometres and took three hours and twenty minutes.

The new-type Sanchez Beza biplane which was exhibited at the recent Salon was put through its trials at Issy-les-Moulineaux on December 6 by Collieux. With three people on board it flew excellently.

M. Levasseur has been making many successful flights on a 100-h.p. Nieuport hydro-monoplane at Les Mureaux. With a passenger on board and fuel making up a load of 400 kilos, he flew for over an hour at 2,000 feet.

On two occasions during the past week M. Guillaux has made extended flights over Paris on a Clement Bayard monoplane, despite the strong disapproval of the police.

In his "L'Aero" interview he says his most startling experience was on a Caudron biplane when flying to London with Mr. Ramsay as passenger. For some time they flew over a sea of cloud unable to see through to the ground. While at a great height the biplane began to dive and despite M. Guillaux's violent efforts he was unable to pull up until close to the ground.

Germany.

On December 5th, Alfred Friedrich set up a new German duration record without passengers by remaining aloft for 5 hours 10 mins. at Johannisthal. The former record was held by Oelerich with 3 hours 39 mins. Friedrich piloted a Rumpler "Dove" with a 70-h.p. Mercedes motor.



M. Moineau flying the 100-h.p. Breguet at Hendon last summer. The slow running of the geared-down propeller is clearly shown.

An interesting sight was witnessed in Berlin on December 5th, when three airships hovered over the capital at the same time, namely, the Zeppelin passenger ship "Hansa," the Parseval "Stolwerck," and the naval Zeppelin "L.1." The streets were thronged with spectators, who watched the three aerial cruisers carry out a series of elegant manœuvres.

Hans Grade, whose works are at Bork, near Berlin, has built a three-seater monoplane, with a 50-70 h.p. air-cooled motor. Up to now the machine has stood all the tests very well indeed.

Sixty-one aviators carried out ascents totalling 1,137 on twenty-four days during the month of November at Johannisthal the time spent aloft being 138 hours 16 mins. in all. So far as time was concerned, Boutard, on a Melli Beese "Dove," headed the list with 8 hours 52 mins., whilst Fokker secured the greatest number of flights with ninety-two.

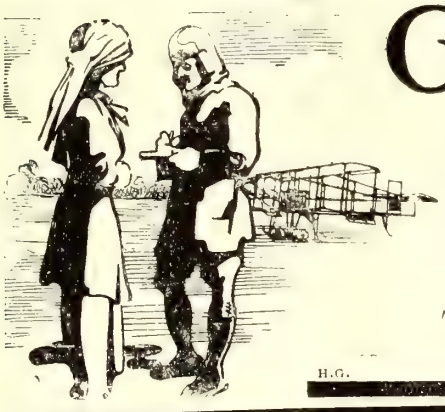
Caught in a violent snowstorm, the new Kober hydro-aeroplane experienced a rare buffetting on Lake Constance on December 2nd. The Swiss aviator Gsell, accompanied by Herr Kober, had flown from Manzell and Bregenz across the lake to Constance, where they landed on the water and were caught almost immediately in a tremendous snowstorm. On attempting to make a hurried ascent for home, a petrol tube gave way and the plane lay crippled on the water in the very heart of the gale. A lifeboat was manned to prevent the machine from being dashed on the shore and wrecked entirely, and about an hour later the Kober Works motor-boat came up to fetch the biplane and its frozen crew home after their two hours' adventure, which the machine stood splendidly.—B.

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The D. G. Gilmour Memorial Fund.

The Committee of the D. G. Gilmour Memorial Fund met recently, and it was then resolved that the money subscribed, amounting to £192 5s. 6d., should be hereafter held in trust, and only the interest paid to objects decided upon by the trustees. The trustees are Messrs. H. Staplee Firth and C. G. Grey and the Secretary for the time being of the Royal Aero Club.

The trustees must invest the money subscribed in trustee stock, and they have the power to vary the investment, but not to distribute the capital. The interest must, under the trust deed, be applied to benevolent uses connected with aviation, or for the establishment or presentation of prizes to scholastic institutions, provided always that the said income shall be applied to some object connected with aviation or to some persons or institution who or which have rendered some assistance to the cause of aviation. This clause has been inserted because, though the trustees have agreed that the income for the time being is to be presented to the Weybridge Hospital, there may come a time when Weybridge is no longer connected with aviation, or when the hospital is not able to accept voluntary contributions, in which case the interest may be applied to some other object. It is stated in the trust deed that in distributing the income from the Gilmour Memorial Fund the trustees shall clearly state that the same is given "In memory of Douglas Graham Gilmour, who was killed while flying on February 17, 1912, in Old Deer Park, Richmond," so that the annual giving of the interest from the fund may be a memorial for all time.

No charge whatever is being made for any of the work connected with the fund, and Mr. Staplee Firth is preparing the necessary legal documents free of all cost. The thanks of the trustees is particularly due to Mrs. Handasyde, who, by unflagging energy, has personally collected a very large proportion of the total amount.

The following is the list of the contributors to the Fund, and the money will be invested at the earliest possible moment by the trustees, so that it may commence to earn interest :—

The Subscription List.

E. C. Gordon-England, C. W. May—£5 5s. each (2)	10	10	0
J. Herbert Spottiswoode, Henry Knox, W. B. R. Moorhouse, E. V. Sassoon, Capt. H. F. Wood, H. F. Locke King, A. and G. E.—£5 each (7)	35	0	0
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Adams Motor Works, Bedford (collected by Mrs. Handasyde)	1	15	0
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Balance of the recent collection at Brooklands for a wreath for the late E. V. B. Fisher. (Collected by Mr. Charteris.)		6	6
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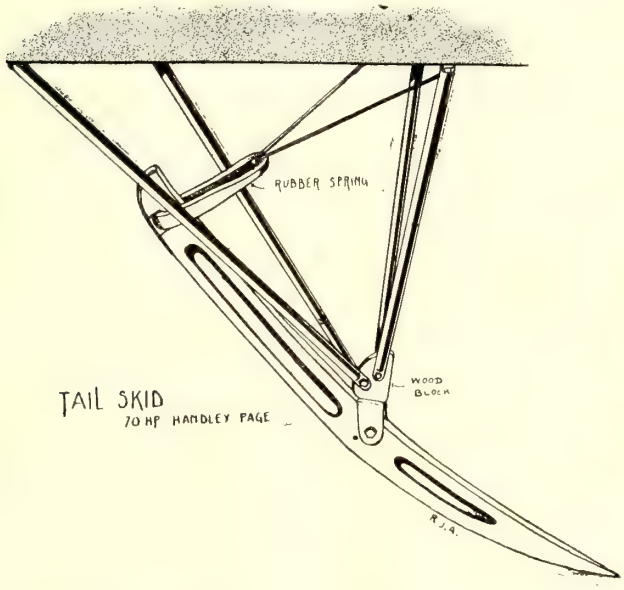
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Total £192 5 6

The New Handley Page Tail-Skid.

The malacca cane tail-skid which was originally fitted to the 70-h.p. Handley Page mono has given place to one of wood. Four steel tubes come from beneath the fuselage, and are united by bolts passing through a wooden block, thus forming an inverted pyramid. The skid is pivoted on to a metal clip fastened to the block, and is sprung by a rubber band in tension. The band is kept in place on the skid by a strip of metal. The new skid is much neater than its predecessor and must offer a good deal less head resistance, while the shock-absorber protects the fuselage from jars and jolts. The pointed toe of the skid should also help in pulling up quickly.—R. J. A.



The Howard Flanders Under-carriage.

The second of the Flanders monoplanes to be fitted with the new under-carriage was at Brooklands a few days ago. The new system is of the Handley Page type, a single centre skid and a pair of wheels. The central skid in this case is of hickory, and the skid struts of ash. Two pairs of struts support the engine, one pair comes from below the passenger's seat, and another pair from the pilot's seat. Between the rear two pairs is the warping gear, and the skid is stiffened up here by a couple of pairs of steel tube struts. The wheels are wire built and covered with fabric. The axle is in two parts, hinged on the skid, the weight being taken by elastic shock absorbers, acting, of course, in tension. Radius rods keep the wheels in track.

The end of the skid is laminated, but carries no weight, except on bad ground. A tail skid is fitted, and takes about 3 cwt. when at rest. The machine itself does not differ from the machine already at Farnborough, and is the same design as that described in THE AEROPLANE of a few months ago.—R. J. A.

A Fine Flanders Performance.

A particularly fine performance was done by the second Flanders monoplane, which was accepted for the Royal Flying Corps at Farnborough last week. In the speed tests, Mr. Raynham reached a maximum speed of 67 m.p.h. and a minimum speed of 41 m.p.h., this being by far the greatest variation of speed yet reached by a monoplane in this country. In its climbing test the machine did the first 1,000 ft. in 3½ mins., and reached 1,500 ft. in 5½ mins., completing the 2,000 ft. in about 8 mins. It went through all the tests with ease, but the speed test had to be put off for a day or two, owing to the engine shedding a silencer, which, of course, had nothing to do with the actual flying of the machine. The Flanders Company are to be congratulated on the excellent show the machine has made, and there is no doubt that as soon as the ban on monoplanes is removed the two Flanders machines will do excellent service.



An American safety belt, which appears cumbersome but strong. *(Reproduced by courtesy of "Aero and Hydro."*

A Flight on the Flanders Monoplane.

In those journals which confine their activites to the chronicling of motoring events, it has been customary since their foundation to describe week by week the varying behaviour of different motor cars. The exigencies of living on the proceeds of advertisements prevent a charming frankness as to any faults that may be found, and a discreet silence is the only method of showing disapproval. Yet those who have the duty of writing such articles are in no difficulty so far as description is concerned. The virtues and failngs of motor cars are so well defined that it is merely a question of positive statement. One car may have wonderful acceleration, another may be distinguished by smoothness of running; another again may find favour by reason of its profound silence. But whatever may be its attributes they are at once obvious. In aviation the view is different. The human element enters so largely into the question that it is difficult when dealing with aeroplanes of ordinary success to know how much of a performance may be due to the skill of the pilot and how much may be attributed to the inherent virtues of the machine. One finds continuously that one lands after a flight with the highest opinion of the capabilities of the particular type, though it may differ greatly from the one in which one last made a flight. Is it a species of self-deception, because flying in itself has charms? One would rather think that it is due to the fact that the age of heroes being officially past, one does not knowingly make flights in obviously inefficient and dangerous machines. Therefore, to a mind not devoid of memories of Demoiselle type monoplanes and the mud of Issy-les-Moulineaux, the virtues of the present-day aeroplane are duly prominent.

On December 2nd, Mr. Raynham took me as passenger on a Flanders monoplane from Brooklands to Farnborough. This monoplane is of large span with king-posted wings, a covered-in fuselage, a 70-h.p. Renault engine (air cooled, eight-cylinder) and dual control. The control is by means of a wheel mounted vertically on a pillar, operating the elevator and wing warping, and a foot steering bar. The passenger's control system was placed out of action, with the exception of wing warping.

The morning was perfect, with hardly a breath of wind, and a bright sun. A slight white mist lay near the ground. We left ground at 10.5 a.m., and turned in a great circle over the neighbourhood of Brooklands, rising gradually all the time. In ten minutes we had risen to an altitude of 3,000 feet, at which height, or slightly in excess of it, we remained until we landed at Farnborough. When over Chertsey we turned towards our destination and continued to fly a straight line.

Unfortunately for experience, such wind as there was high up was absolutely steady. During the entire flight not a tremor disturbed the equilibrium of the monoplane. The warp wheel in front of me, working in sympathy with that of the pilot, scarcely moved from the time we left Brooklands until we reached our destination. The passenger is seated in front of the pilot in a very comfortable position, shielded from the greater part of the slip stream. He is actually looking down on the top of the engine.

The predominant impression, from the passenger's point of view is that of great solidity. There is that unyielding steadiness so apparent in a battleship. Not a wire nor a strut vibrates, and except for the increased comfort one might be running along the ground. Looking over the leading edge of the wings from a constant position the ground disappeared regularly and consistently. There was no appearance of rising and falling so obvious on some aeroplanes lacking longitudinal stability, or possessing it to a marked degree, whatever may be the case. Mr. Raynham flies with decision enough to give confidence to the most nervous of passengers.

From 3,000 feet the ground could be seen directly below through the mist. In the distance on all sides spread an opalescent fairy world of cloud mountains, strikingly beautiful but unpromising to the aviator. Safety and beauty do not necessarily walk hand in hand.

Over Woking the wind increased in strength and for some time we appeared to be stationary in relation to the ground. The most curious phenomenon to me was the impression I had that the wind pressure perceptibly varied as we went along. At times the pressure on my face seemed to increase greatly, though, apparently, we were neither rising nor falling. Pure fancy is, of course, responsible for many ideas of this kind.

The regularity of the Renault motor may have been praiseworthy, but it was also monotonous. To watch the valve rockers work ceaselessly and swiftly in constant order may bring joy to the heart of an engineer, but it rather bores some passengers. One thought fantastically of what might happen if the valves, tired of discipline, opened and shut as it pleased them.

We arrived over Cove Common, and, having fifteen minutes of the required hour to waste, we turned in great circles over Laffan's Plain. Far below, by Mr. Cody's shed, brilliantly white in the sunshine, lay the wings for the Cody biplane. Nearer to the Aircraft Factory was a B.E. flying swiftly, and piloted, as we learnt later, by Mr. de Havilland.

A few minutes after eleven we started to descend. At 3,000 ft. the ground could be seen clearly, but at 1,000 everything was lost in a black haze. We landed at 11.10, just outside the Aircraft Factory, again in bright sunshine.

As soon as Mr. Raynham was ready, the monoplane was put through a portion of the specified tests, including that of rolling over an uncomfortable section of Cove Common. To combat imputations of unfairness (one would imagine), the Factory officials have now erected two posts half a mile apart, between which all machines must roll. The Flanders was made to roll two miles in all, which it did with success. The promptitude and courtesy of the Aircraft Factory officials was notable.

The speed tests were passed on the following day The slowest obtained was 41 miles an hour, and the highest 67, a variation which constitutes a world's record for monoplanes. The rate of climb was 290 ft. a minute—no mean performance for a heavy monoplane. As a flying machine, the Flanders monoplane has few rivals. Only those who have flown in it or watched its performances with care can judge. In the air its behaviour resembles that of the Antoinette more closely than any other machine of which I have any experience.

The arc of view given to the passenger is excellent so far as monoplanes go. Some means of giving a direct view downwards should be devised if the machine is to carry out adequate scouting duties.—W. E. de B. W.

A Fine Cross-Country Flight.

One of the finest flights made this year was done on Tuesday last by Capt. J. H. W. Becke, 1st Battalion the Sherwood Foresters, formerly a Bristol pupil, and now of the R.F.C. Wishing to visit the 2nd battalion of his regiment, the old 95th Foot, now at Plymouth, Capt. Becke, with Lieut. Herbert as passenger, flew one of the Maurice Farmans from Farnborough to Plymouth. The distance is roughly 175 miles, and is certainly the longest straight away cross-country flight ever made by a military officer in this country. Neither Capt. Becke nor Lieut. Herbert have had any great experience of cross-country flying, and the country over which they flew after passing Salisbury Plain is about as bad as any in England from an aviator's point of view, so that the flight was an exceedingly plucky one, though one is not quite sure whether such long flights should be encouraged without pilots having considerably more training in finding their way over strange country. Certainly the Royal Flying Corps ought to do very much more flying over strange country than they do, and it is to be hoped that other officers of the Corps will be encouraged by the authorities to make similar flights.

On Friday the two officers flew back again, being forced to make two landings on the way, owing to rain storms.

An Abortive Scare.

The daily Press has made much of the appearance on Tuesday of last week of a "large airship" over Portsmouth, and quite a praiseworthy attempt was made to work up an airship mystery out of the small material available. As a matter of fact, the little "Beta," which was the "large airship" in question, bears about the same relation to a Zeppelin that a picket-boat does to a Dreadnought.

Mr. L. P. Clarke, writing from Southsea, says that an aircraft was distinctly heard over that town on the Tuesday night about 10 p.m., and one gathers from Farnborough that the "Beta" returned to Southsea late at night; so that the good people can rest assured that in their case it was not a foreign dirigible, as it was at Sheerness.

The white ensign flown by the "Beta" on this occasion is accounted for by the fact that by kind permission of the management she is lent to the Navy on Tuesdays, and was on this trip manned by naval officers. It will thus be seen that the Navy possesses at present one and one-seventh airships.

A Bad Case.

The Royal Aero Club has now had an excellent chance of proving itself something more than a body for mere sportive legislation. The performances of Manio, or Mario, or whatever his name is, cry aloud for an adequate reward. Here we have a foreigner of sorts—he may be a naturalised Englishman for aught one knows or cares, it does not alter the fact—behaving in a thoroughly reckless manner, endangering the lives and damaging the property of His Majesty's lieges as grossly as does any Whitechapel anarchist "running amok."

His whole aerial progress since he left France shows him to be either incompetent or criminally careless as the pilot of an aeroplane. In his ordinary vocation he may be the most estimable of men, but as an aviator it is evident he is a danger to the community. In crossing the Channel, so bad is his navigation that he hits England on the North coast of Kent instead of at Dover. In flying thence he goes right over the heart of the City, only a couple of hundred feet up, having followed the Thames for many miles further than he would have done if he had had the least idea of finding his way. Here he had at least the sense to turn back, and land at Barking. Thereafter his notion of getting to Hendon is shown by his landing at Hertford, thus demonstrating that he has no appreciation of time, distance, or direction. To cap it all, in a last effort to get to Hendon he comes down on a house at Palmer's Green, again miles off his proper course. It was simply the special providence which looks after fools, children, and drunken men, that prevented him either from coming down in a crowded street and killing someone or from setting a whole house alight with petrol from his tanks.

It is no excuse to say that he lost his way in the fog. A man with any sense would have come down when he could not see his way, and knew that he was in proximity to a city. Failure to do so shows an absolute unfitness to handle any wheeled vehicle more dangerous than a hand-truck, and even with that such a fellow would probably manage to be a public nuisance.

The end of his journey shows the wisdom of prohibiting flying over inhabited areas, a form of legislation which the writer has always strongly advocated, at the cost of incurring considerable personal obloquy from those who consider that because they themselves know how to behave in the air similar freedom is safe for all. It is only extraordinary that while a respectable house and a decent, if elderly, aeroplane have been considerably damaged, the insenate cause of the wreck should have escaped unhurt.

A New Type of Side-Slip.

While the Handley Page monoplane was flying at Hendon on Sunday, it gave an exhibition of a new thing in side-slips which was quite out of the ordinary. The engine was running badly, so that, with pilot and passenger on board, the machine was flying distinctly tail down. After several circuits she had come across the north end of the ground, heading against the wind towards the Edgware Road. Just before reaching the boundary fence of the ground, the pilot turned to the left to continue the circuit. The machine came round till she was heading along the line of the sheds occupied by the Deperdussin, Ewen, and Bréguet firms. A hundred yards or so from the first shed, at a height of about 200 ft., the machine again turned to the left to come in over the aerodrome properly, the wind then being on the starboard beam. Immediately the right wing went slightly up, and she rolled over gently to the left, but, instead of slipping and diving, as one would expect a machine with a deep slab-sided body to do, she swooped quickly but steadily to the left, crossed the full width of the enclosure, hardly lost anything in height, and finally continued her course as if nothing had happened, though about 50 yards or so to the left of where she would have been if she had made the turn in the ordinary way. In short, it appeared as if what should have been a side-slip and nose-dive was simply turned into a rapid lateral glide.

The performance was quite noticeable to the onlookers, but neither pilot nor passenger realised that they had had a slip, being under the impression they had only had rather a big roll, and the warp was not used.

The explanation of the machine's behaviour seems to the writer to be something as follows: under normal circumstances, owing to the way the wings are swept back, neither wing uses the full effect of its entering edge. Now, when a side-slip happens, any machine has quite a large amount of forward way on, so that instead of slipping laterally it actually does so sideways and forwards, diagonally to its flying path. The result is that when a machine of this type starts this diagonal dip the lower wing—in this case the left one—presents its full entering edge to the wind, and so gets an added lift, while the upper presents much less entering edge than usual, becoming in fact a kind of empennage to the lower one, the flat or upturned tip acting like a raised elevator and pressing that wing down. This action should have the effect of bringing the machine on to an even keel at once, even if unassisted by the warp.

This explanation may not fit with the theory of automatic stability on which the machine is built, which the writer believes can be worked out mathematically, but as a rule of thumb reason for the behaviour of the machine it seems to meet the case. If anyone can find a better it will be interesting to have it.—C. G. G.

Chauviere Successes.

Visitors at the Paris Aero Show were able to see at the Integrale Chauvière stand, a propeller completely submerged in water, in an aquarium. At the end of the show—that is to say after 15 days' total immersion—this propeller was withdrawn from the water and the numerous technical experts who were present were able to certify that the propeller had suffered in no way whatsoever from this immersion. This should at least satisfy civil and military aviators who contemplate camping out in open air in all weathers. If an Integral Chauvière propeller has been able to remain for 15 days entirely submerged in water, surely it will be able to resist ordinary humidity and bad weather far more.

Further, Mr. Compton Paterson writes:—"I might mention that my 500-mile flight across Central South Africa was successfully completed without mishap of any kind, on a Paterson biplane, fitted with the original Chauvière propeller I have used throughout my tour."



Mr. Eric Harrison flying a Bristol monoplane over the new German aerodrome at Halberstadt.

The Week's Work.

MONDAY, December 2nd.

R.F.C. (Central Flying School).—Very strong westerly wind, bright sunshine. Lieut. Playfair flew to Farnborough on Breguet 210, and later on 211.

R.F.C. (Farnboro').—About 11 a.m. Lieut. Playfair arrived from Upavon on Breguet 210 and in afternoon flew over from Upavon on 211, making two good flights in very brisk wind. Airship "Beta" out for several long trips, flying well. Mr. Cody out on Cody biplane giving instruction to Lieut. Harrison, R.F.C.

Hendon (At Bleriot School).—Lieut. Loftus Bryan and Mr. R. Desoutter on L.B.1. M. Gandillon nice flight on No. 3.

Brooklands (At Bristol School).—Mr. Merriam testing with Lieut. Todd as passenger and in afternoon took up Capt. Richards and Capt. Powell. Mr. Bendall took Lieut. Thompson.

TUESDAY, December 3rd.

R.F.C. (Central Flying School).—Misty, very sharp frost. Sunny till 10 a.m., then dull. Moderate southerly wind. On Avro 404, Air-Mechanic Higginbottom 20 mins. and 10 mins., Ldg. Seaman Bateman 8 and 15 mins., P.O. Andrews 8 and 10 mins., Capt. Salmond with Air-Mechanic Baldock 5 mins. On Maurice Farman 411, Lieut. Freeman 48 mins., Lieut. Courtney, R.M.L.I., 20 mins. On Maurice Farman 415, Major Trenchard 30 mins. On Short biplane 401, Major Gerrard, R.M.L.I., 3, 10 and 5 mins. alone, with Ldg. Seaman Prickett 15 and 12 mins., with Ldg. Seaman Brady 5 mins. Lieut. Smith-Barry 20 mins. On Henry Farman 412, Lieut. Shepherd 14 and 8 mins.; Lieut. Lushington, R.M.A., 12 mins.; Lieut. Waldron 8 mins. On Short tractor 413, Major Gerrard 19 mins.; Lieut. Smith-Barry 17 mins., doing fine banked turns and corkscrews and landing with fine spiral glide. Capt. Risk 15 and 16 mins. alone, with Pte. Ellison 12 mins. Lieut. Hubbard with Stoker Edwards, damaged machine, but neither seriously hurt.

R.F.C. (Larkhill).—Capt. Dawes out on Maurice Farman for 30 mins., after which Capt. Fox took over machine, putting in some splendid flying for 30 mins. Later Capt. Dawes made another trip with a passenger, Air-Mechanic Smith. Capt. Fox fine flights on 203, first time reached 3,600 feet, and second time 4,400 feet, and in both coming down in splendid spiral. Major Higgins good trip on same machine for 50 mins. round Bulford and Tidworth. Capt. Fox made another trip with Lieut. Lawrence as passenger for 21 mins., reaching 3,100 feet. Lieut. Ashton afterwards on same machine.



Petty Officer Andrews, R.N., a promising pilot at the Central Flying School.



Mr. Vincent Taylor, "Capt. Penfold," a recent Bristol pupil to take his certificate.

R.F.C. (Farnborough).—On Maurice Farman 215, Capt. Pigot three flights of 6, 10, and 12 mins., Lieut. Carmichael two flights of 5 and 8 mins., then Lieut. Herbert and Capt. Becke left for Plymouth on 215.

Royal Aircraft Factory (Farnborough).—Mr. De Havilland several flights on B.E. 2, 4, and 17, a new machine of "Factory" type. Mr. Petre out on Martin-Hardasyde. Mr. Raynham testing new Flanders monoplane, both putting in good flying. Mr. Raynham on F4 No. 2, flying alone for 10 mins., then delivered machine to Royal Flying Corps. He left Brooklands at 3,000 feet, carrying Mr. Whittaker as passenger, and put machine through hour's flight, climbing test, and rolling test.

Hendon.—At Grahame-White School.—After having had to wait several days for weather to calm down, at 11.30 Lieut. Birch started second part brevet tests, coming through well on No. 5 biplane. Lieut. R. G. D. Small doing straights with Chief. Pilot Noel; Mr. Power rolling under supervision of Mr. Manton, Lieut. G. Hallowes (a new pupil) as passenger with Mr. Noel. In afternoon Lieut. Small and Mr. Power straights with Mr. Noel, Lieut. Hallowes rolling with Mr. Manton; later Mr. Noel taking Lieut. Hallowes up.

At Blackburn School.—Mr. Glew one flight and in landing managed to crack a skid, which barred further school work for the day as the brevet machine is only just recovering from Mr. Laurence Spink's somersault, and the engine of No. 1 is undergoing repairs.

At Deperdussin School.—Pupils out early under new pilot, Mr. J. Brereton, who gave them good morning's work. Lieuts. Mapplebeck and Hooper both doing circuits, former making figure 8 in good style. Mr. Whitehouse circuits on No. 3 machine. Messrs. Valazzi and Durand taxying on No. 2, and afterwards were put on to No. 3 Brevet machine. Mr. Valazzi making good progress. Mr. Scott several good

straights. Mr. Phelps put in appearance after some weeks' absence, and was out on No. 2 taxi. Instructor Brock making trial circuits on No. 4 brevet machine.

At W. H. Ewen School pupils out at 7.30 a.m. under M. Baumann on monos 1 and 2. Lieut. M. W. Noel and Mr. H. Gist excellent flying on mono No. 2 at 30 and 40 feet. Messrs. M. Zubiaga, R. S. McGregor and E. T. Prosser all showed distinct advance on No. 1 mono. After lunch pupils out again, Mr. Sydney Pickles testing new 28-h.p. Caudron school biplane, on which he made several circuits at over 600 feet, whence he made a beautiful glide.

At Bleriot School.—Excellent day's work. Messrs. Gandillon, Sacchi and Reilly on No. 3, and Lieut. Loftus Bryan and R. Desoutter on L.B. 1. In the afternoon M. Gandillon several circuits on No 3.

Brooklands.—At Ducrocq School.—Mr. J. Alcock good circuits flying very high, also Mr. McAndrew circuits very nicely.

At Bristol School. Mr. Bendall with Capt. Powell and Lieut Thompson. Lieut. Mills figures of eight and landing well. Lieut Todd a couple of circuits; Mr. Ewing, Lieuts. Maclean, and Shekleton straights. Later Mr. Merriam with Capt. Rickard. Lieut. Mills passed for brevet. Capt. Rickard straights, Mr. Featherstone also flying. Mr. Bendall with Capt. Powell; Lieuts. Todd, MacLean and Shekleton all alone.

Salisbury Plain.—At Bristol School, Mr. Pizey for test, then with Mr. Rees, Lieut. Bigsworth and Major Macree, Mr. Harrison with Lieut. Bigsworth, Mr. Busteed on new 80-h.p. mono with Mr. Harrison as passenger. M. Jullerot on tandem mono, and then with Lieut. Bigsworth for a trip. Mr. England tuition to Lieut. Rees and Mr. Tower. Lieut. Negrescu four excellent flights. Lieuts. Parvelescu and Chiscaneanu twice on mono. "Capt. Penfold" successfully took certificate under the observance of Major Higgins and Capt. Conner. Mr. Pizey testing in afternoon. Mr. Harrison tuition to Lieut. Bigsworth and Lieut. Rees. Mr. England testing.

WEDNESDAY, December 4th.

R.F.C. (Central Flying School).—Capt. Salmond two circuits in spite of fearful wind and weather.

R.F.C. (Lark Hill).—Major Higgins out on 203 for 28 minutes over to Central Flying School and over Bulford. Afterwards Capt. Fox made two trips for 22 and 28 mins.

R.A.F. (Farnborough).—Mr. de Havilland out on B.E.2., and 417. Mr. Petre on Martin-Handasyde and Mr. Raynham on Flanders, all flying in strong wind. Mr. Raynham put F.4. No. 2 through slow and fast speed tests. Machine inspected and accepted by War Office. Maximum speed average 67.2 m.p.h. Minimum speed 41 m.p.h. Climb average 290 feet per minute.

Hendon.—At Deperdussin School.—Instructor Brock testing on several occasions, but did not allow pupils' work.

Brooklands.—At Bristol School.—Mr. Merriam with Lieut. Thompson. Later Mr. Merriam with Lieut. Empson. Mr. Bendall with Capt. Powell and Mr. Merriam with Lieut. Shekleton.

At Ducrocq School.—Mr. Alcock out in evening.

Windermere.—"Sea Bird" out to test new float of modified shape, wider and with a longer and more buoyant tail. But it came on to blow and rain before much could be done.

THURSDAY, December, 5th.

R.F.C. (Lark Hill).—Capt. Fox on 203 with Sergt. Bruce as passenger for 20 mins. to 2,000 feet and afterwards with Mechanic May for 54 mins. reaching 6,000 feet. Major Higgins afterwards took up Mechanic Baker for 55 mins. to 5,000 feet. Lieut. Ashton afterwards on same machine.

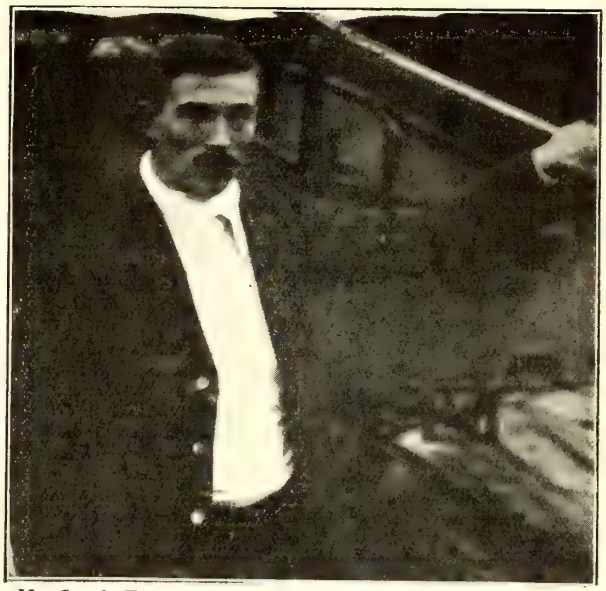
R.F.C. (Farnborough).—Lieut. Longcroft arrived from Chartly in Staffordshire on B.E. type 201 at 5.0 p.m., making good landing in darkness after having had forced landing at Cove, Hants, owing to shortage of petrol.

R.A.F. (Farnborough).—Very cloudy and strong wind, but Mr. Havilland on B.E.2. and 417, also Mr. Petre on Martin-Handasyde, both putting in good flights.

Hendon.—At Grahame-White School.—In afternoon Mr. Gates and Mr. Manton were doing fine exhibition circuits, while Mr. Noel was taking up passengers, and Mr. Desoutter doing good work on Blériot.

At Bleriot School.—Lieut. Loftus Bryan and R. Desoutter on No. 1. During week Lieut. Eric Conran, who took his certificate a few weeks ago, joined school, intending to go for superior brevet.

Brooklands.—At Ducrocq School.—Mr. J. Alcock circuits in morning and in afternoon.



Mr. Lewis Turner, now chief pilot at the W. H. Ewen School.

At Bristol Scool.—Lieut. Todd two straights and circuit. Mr. Featherstone two circuits. Mr. Bendall testing biplane. Capt. Powell, Lieuts. Shekleton and MacLean, and Mr. Ewing all out.

Windermere.—"Sea Bird" again out on new float in morning. Not going well. In dusk after alterations, out again, and quite successful, but under-carriage strained in experiments and will have to be partly replaced.

[N.B.—The wheels tried last week have been scrapped, being total failure. The correspondent who thought they "might do with improvement" was too optimistic.]

Salisbury Plain (Bristol School.)—Mr. Pizey testing, but weather very bad. Mr. England on tandem and Mr. Busteed on 80-h.p., but school work not attempted.

FRIDAY, December 6th.

R.F.C. (Lark Hill).—Major Higgins on 203 to 2,000 feet, and afterwards Lieut. Ashton took Mechanic Littlejohn, F. W., for a short trip, later for trip by himself.

R.F.C. (Farnborough).—Wind very strong and tricky for flying, Capt. Becke and Lieut. Herbert arrived from Plymouth on Maurice Farman 215. They left at 10.15 a.m., and arrived at Farnborough 2.40, but had had to make two landings on account of storm. Actual time flying 2¼ hours doing 170 miles. Very good performance on bad day.

Hendon.—At Grahame-White School.—In afternoon, as Mr. Manio was expected, but failed to appear, Mr. Louis Noel started out on 80-h.p. Farman to meet him, but after a good flight nearly to Hertford, was compelled to return disappointed.

Salisbury Plain.—At Bristol School.—Slight improvement in afternoon, and Mr. England took out Lieut. Vernon, Mr. Pizey tuition to Lieut. Bigsworth. M. Jullerot took Lieut. Rees, and Mr. Harrison with Lieut. Bigsworth, Mr. Busteed testing new 80-h.p. and also modified mono with Anzani.

SATURDAY, December 7th.

Hendon.—Fine flying in bad weather by Messrs. Noel, Desoutter, and Pickles.

Brooklands.—Handley Page monoplane flew back to Hendon with passenger.

SUNDAY, December 8th.

Hendon.—Exhibition flying as usual despite weather. (See special report.)

Brooklands.—At Ducrocq School.—Mr. J. Alcock circuits and across country most of afternoon in great style. Mr. McAndrew circuits, showing great promise.

At Bristol School.—Mr. Merriam out in morning. In afternoon during Bomb Dropping and Alighting Competition landed dead on the mark, after shutting off engine at over 100 feet. Result of Competition: 1st, Mr. Pashley (Sommer); 2nd, Mr. Knight (Vickers Farman); 3rd, Mr. Merriam (Bristol). Messrs. Bendall (Bristol) and Alcock (Farman) also competed.

During afternoon Mr. Barnwell made excellent flight on No. 5 Vickers monoplane climbing to well over 3,000 feet.

Doings at Hendon.

Really those Hendon aviators are a remarkable crew. It has now become a kind of point of honour that there must be week-end flying, weather or no weather, gate or no gate, and in consequence there has not been a single blank week-end this year. Last Saturday, dismal as it was, Messrs. Noel, Desoutter and Pickles were all out flying strongly, and on Sunday, which was worse because of the wet, there was quite a lot of really good flying. Mr. Noel took up many passengers on the 80-h.p. Farman, several times going out of sight across country. Mr. Gates was doing his favourite banked turns on the 50-h.p. Grahame-White biplane. Mr. Manton, who is improving every week, was flying high in quite a nasty wind on the same machine.

M. Desoutter, on the old 50-h.p. Blériot, went up to 2,500 feet, through the clouds and into bright sunlight, which shows that our dismal climate is only skin deep, though that is little satisfaction to us subcutaneans. Presumably some day we shall all go up for a sun-bath whenever we have nasty dull weather.

The Handley Page monoplane, which came over from Brooklands in the fog early the previous day, and nearly lost itself with Mr. Hardwick on board, was out all day on Sunday, among the passengers being Messrs. Meredith, Fletcher, de Grey-Warter, and Mr. Plant, the popular, but firm and businesslike Cerberus of the aerodrome, who, strange though it may seem in one who has been so long and intimately connected with aviation, made his first flight. His enjoyment was evident, though he did not feel quite equal to taking the pilot's advice to "stand on the seat and look out" if he wanted to see more, for a first flight at 600 feet or so on a gusty day is not quite as inspirative of confidence as a railway train.

The latest attraction at Hendon is the beautiful Maurice Farman, goggle eyes and all complete, which was at the Paris Show. She ought to be out by the end of this week, and will probably be used for passenger work, for which she will be even more comfortable than previous machines, as the passenger sits low down behind the pilot and so gets much more shelter.



Mr. Manton, the young Grahame-White pilot who is flying so well at Hendon.

At the Deperdussin establishment a new British-built "monocoque" is expected before long. Mr. Brock will probably have charge of this and of the 100-h.p. two-seater, and to relieve him of some of his work Mr. Brereton, who flew so well on a Blackburn at numerous exhibitions this summer, has been appointed to look after the pupils and their machines.

At the Grahame-White works, the 90-h.p. three-seater biplane with the engine in front and the propeller behind is coming along nicely and should make her first flights before long. She is one of the best built machines I have seen for a long time and ought to be a useful type for military purposes.

The Bréguets have been out testing at intervals in the hands of M. Richet, but details of engine mechanism have been giving some little trouble, so no big flights have been made, though while the engines have behaved the machines have flown excellently.

At Blackburn School the weather has been very unpropitious all the week. Time was well spent in the hangar making new planes to replace the somewhat dilapidated ones of the rolling machine, thus in some measure relieving the staff at the Leeds factory, where at present there is considerable pressure of work. After this great things will be expected of the rolling machine.

At the Ewen establishment Mr. Lewis Turner has been appointed chief of the school, as the forthcoming developments in Mr. Ewen's business—shortly to become W. H. Ewen, Ltd.—will take Mr. Ewen away from Hendon a good deal. The new firm has received powerful backing in Glasgow, where several business men of importance have interested themselves in the affair, and before long Caudron biplanes, monoplanes, and hydro-aeroplanes will be built in Scotland. Lanark will be the testing ground and machines will be built there at first, pending the organisation of a proper establishment near the Clyde. The Firth of Clyde offers great opportunities for water-fliers, and the district can provide workmen of the highest class, so the new venture should be a great success. Mr. Ewen's plucky fight against Scottish caution in taking up aviation either as a sport or an industry has merited its reward, and all will wish him a prosperous career as a manufacturer.

Altogether things are beginning to move at Hendon, and after the "turn of the year" we should see some remarkable developments there. Mr. Gates tells me that he could already let all his sheds twice over, and a number of new sheds will soon be built, so many fresh machines will be seen there in the new year. Mr. Grahame-White and Mr. Gates are to be congratulated on the development of the aerodrome, and they well deserve the success they have won.—C. G. G.

The Aeronautical Society.

Loan Exhibition, Science Museum, 1912-13.

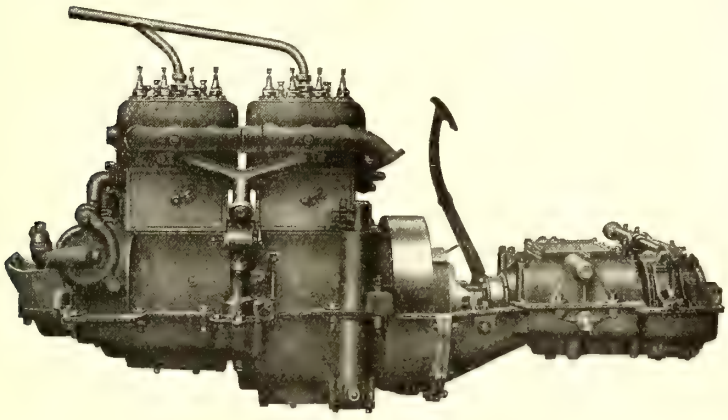
A temporary collection illustrating the development of aeronautics is now being got together at the Science Museum. The exhibition will last about six weeks in December and January. The Society is contributing many portraits and prints, Stringfellow's model aeroplane and light-weight steam engine, the Pilcher Glider from which Pilcher met his death, and a Lilienthal Glider. Members possessing relics of early pioneers are requested to communicate with the Secretary at 11, Adam Street, Adelphi, W.C.—Bertram G. Cooper, Sec.

To Photographic Readers.

At this time of the year, when the taking of photographs does not occupy so much time as in the summer, one has an opportunity of working up artistic pictures from photographs taken earlier in the year. When thus engaged, one cannot do better than experiment with the new coloured tabloid toners recently introduced by Messrs. Burroughs Wellcome and Co. The tabloid blue toner provides a ready means of toning bromide, gas-light prints and lantern slides to a very pleasing colour. The depth of colour follows the gradation of the originals, so that the shadows are a rich deep blue followed by a pleasing gradation through the half tones to the high lights, which are particularly pure. The green toner also gives excellent effects, especially for landscapes with plenty of vegetation in them, while the blue is particularly suitable for photographs of hydro-aeroplanes or pictures with water in them. The method of using the toners is quite simple and is fully described in the packet.

Concerning the Adler Car.

The following notes give further details of the 1913 type Adler cars which were so successful at the Olympia Show. One of the chief beauties of the Adler is the way in which



The Adler Power Plant.

the motor, complete with the gear-box, is built up as one solid self-contained group of machinery. This group is carried on four points, one in front of the engine, two arms level with the fly-wheel and one point on a cross member behind the gear-box. This simplicity of design results in considerable advantages in construction, and permits the motor to be built into the car accurately and solidly, and independent of any errors in the erection of the car itself. Also this single unit system makes a beautifully clean engine, and absolutely keeps dirt out from the working parts. It further permits the elasticity of the frame to have full play without deforming any portion of the drive which is not intended to move. Owing to the general cleverness of the design, the various parts of the motor, oil and water pumps, carburetter and ignition gear are quite easily accessible.

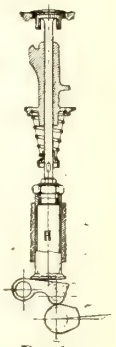
As regards the frame, this is of "U" section pressed from the best quality steel, and consists of two longitudinal members connected by four transverse members, which are riveted to them. The front springs are the usual semi-ellipse, and the back springs are a long three-quarter ellipse combined with an inverted "C," all the shackle bolts being provided with Stauffer greasers.

The front axle is a particularly strong "I" section forging, and the front wheels have unusually large bearings.

Extreme care has been taken in the design of all steering parts, so that the safety of these very vital details can be absolutely guaranteed.

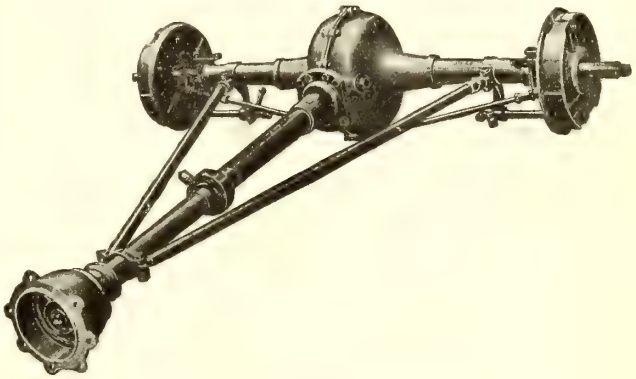
The back axle is of simple but sound design with cast steel cases, the actual driving axle carrying no weight. All the rear axle transmission gear runs in an oil bath, so that one gets beautifully smooth running.

The engine is the usual four-cylinder vertical cast in pairs, the water jacketing being of large dimensions. All valves are on one side of the engine, and a valuable improvement has been added in the adoption of a duplex valve, which has a double seating. The ordinary mushroom valve head has a cylindrical continuation downwards, which has a seating of its own, and acts as a piston slide. The consequence is that the valve can be lifted before the current of gas starts, and results in a high power output due to the reduction of the throttling of the inlet and exhaust gases. All valves and parts are interchangeable and very easily adjusted. Lubrication is by rotary pump, delivering oil under pressure to the various points requiring lubrication, and all splash lubrication is obviated, and the consumption of oil is very low.



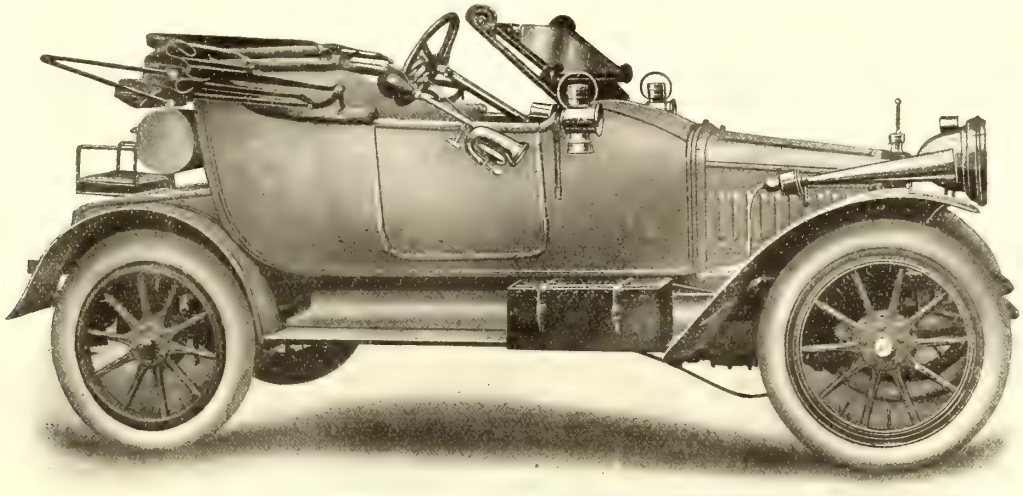
Duplex Valve Gear.

The carburetter, which is of the Adler Co.'s own design, is as nearly automatic as a carburettor can be, and the dashpot control of the extra air valve insures economy in petrol consumption. The mixing chamber is heated by water from the cylinders, but in spite of this the carburetter is easily removed for cleaning. All cars have dual ignition, the magneto being easily removable.



Adler Back Axle Arrangements.

The triangulation of the tube enclosing the cardan shaft is exceedingly neat, and has proved its efficiency in use on the



The Adler 12-h.p. two-seater, one of the most comfortable of small cars.

heaviest cars. The brakes are thoroughly effective, and can be depended upon in even the hilliest country.

The bodies on all Adler cars are built by the famous firm of Morgan and Co., Ltd., who are one of the oldest and best known firms of carriage builders in the trade.

The smaller models of car are equally well designed and built, and in all types the Adler can be depended upon for workmanship and wearing qualities.

The makers of the car do not claim excessive speed for it, and have never indulged in an extensive racing stable, but the writer knows that with proper tuning they can be made to go at least as fast as anything of their size on the road.

The following are the bore and stroke of the various sizes of engines :—

10 h.p.	65 x 99 mm.	25-35 h.p.	92 x 148 mm.
12 h.p.	75 x 103 mm.	15-25 h.p.	80 x 130 mm.
55-65 h.p.	125 x 160 mm.	14-18 h.p.	75 x 118 mm.
35-45 h.p.	114 x 116 mm.		

The Dash for Winter Sports.

Those who are thinking of going to Switzerland for their winter holidays, and who want to know all about it beforehand, certainly ought to get a copy of "A Dash for Winter Sports," by H. M. Maitland. Mr. Maitland's contributions to "Air Currents" in The Aeroplane, over the initials H. M. M., will be remembered for the knowledge they displayed of aviation from the inside, and apparently his knowledge of winter sports is quite as intimate. His description of the journey by train up the Alps, with the passengers whiling away the time with that touching melody "Il est defendu de se pencher dehors" is one of the finest pieces of descriptive writing in all literature, and his instructions for the treatment for frost-bite, broken legs, etc., are calculated to increase the death roll of the Alps by several hundreds per annum. Altogether the book is one of the most hilarious things that has appeared for quite a long time.

A Silver Model Aeroplane.

Those who are on the look-out for really good Christmas presents for their friends at high or low prices are strongly recommended to pay a visit to Mappin and Webb's premises in Oxford Street, where there is a wonderful selection of beautiful things. If one cannot go in person, it will be well to write for the firm's list which is almost equally tempting.

Some little time ago Messrs. Mappin and Webb produced quite the best silver model of an aeroplane it has been the writer's lot to see. This was made for Mr. W. B. R. Moorhouse, and was an exact copy of the Radley and Moorhouse Blériot, and the firm are prepared to make similar models of any machine required. The accompanying photograph of the model will give some idea of the excellence of their work.

Quite recently a model of the Cody biplane has been produced, which is, if possible, better than the R. and M. model. Everything is exactly to scale, and even such details as the knots in the bamboos and the ignition switch and wires have been carefully put in. This model can be seen during the next week or so at Mappin and Webb's, and it is well worth going to see, only it will be well to "put money in thy purse," for the other things in the shop are so fascinating that it would be hard to have to come away without buying. The Cody model is to be presented to Mr. Cody by the Shell Spirit Company.

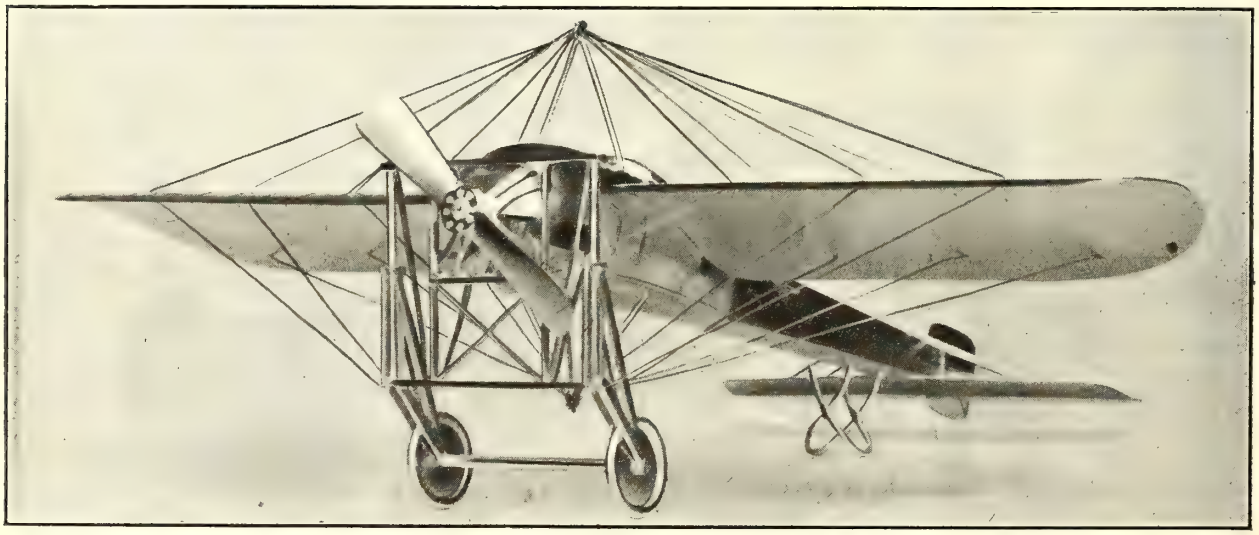
The Handley Page Trip.

The passenger in the Handley Page monoplane from Brooklands to Hendon on Saturday last writes:—"To the joys of flying in wind gusts up to forty-five miles per hour, our hard worked monoplane has this week-end been indulging in the pleasures of flying in a fog. Last Saturday the machine was left at Brooklands, as the engine was in need of overhauling. It was cleaned up enough to make it last the journey, so that it could be properly overhauled at our own works, which are quite close to the Hendon Aerodrome. The wind velocity registered on the ground at Brooklands was twenty miles per hour, and a heavy mist and fog did not make matters easier.

"Just about noon the propeller was swung round, and the machine merrily started, climbing 400 ft. in the length of the aerodrome. At 600 ft. the machine entered the clouds, and so dense was the mist that the rudder was invisible to both passenger and pilot. A descent to 400 ft. made matters a little better. An attempt to steer by compass failed owing to the card sticking.

"By wide sweeps to right and left over the hazy landscape, Ealing was at last discovered on the port beam. It should have been to starboard. The pilot, making a wide turn to the north, earnestly entreated the passenger to look for Harrow. The passenger stared into the fog with distended eyeballs, but could see nothing. Soon afterwards, a violent dig in the ribs from the pilot's elbow conveyed to him the welcome news that Wembley was still in its proper place on the map. Then the fog closed down again and blotted everything out. In the meantime, the engine becoming discouraged, steadily shed revolutions. The pilot descended until the fields were once more visible, and resumed the old scheme of casting from right to left. A gusty wind, now astern and anon on either beam, caused the monoplane to surge like a motor-boat in a following sea, albeit on an even keel. Suddenly the passenger caught the faintest possible glimpse through the fog of a ridge, which he identified as Harrow. Calling the pilot's attention to it, the course was again altered to the northward. A little more groping, coupled with various adjustments of the petrol to encourage the engine, and the waters of the Welsh Harp appeared away on the left. Shortly after passing the reservoir the Hendon Aerodrome appeared. Avoiding the sheep, a landing was made in front of the sheds, and pilot, passenger, and suit-case extricated themselves from the cockpit and retired to indulge in a well-earned lunch at Mr. Reeves' restaurant, having spent a most variegated eighteen minutes."

This machine is certainly demonstrating its effectiveness as a flying machine, as well as its automatic stability, very thoroughly.



The Silver Radley-Moorhouse Blériot Model, built by Mappin and Webb for Mr. W. B. R. Moorhouse.

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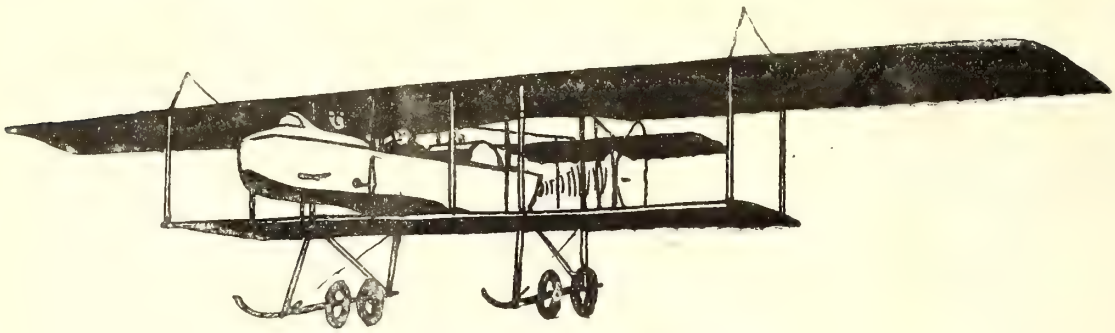
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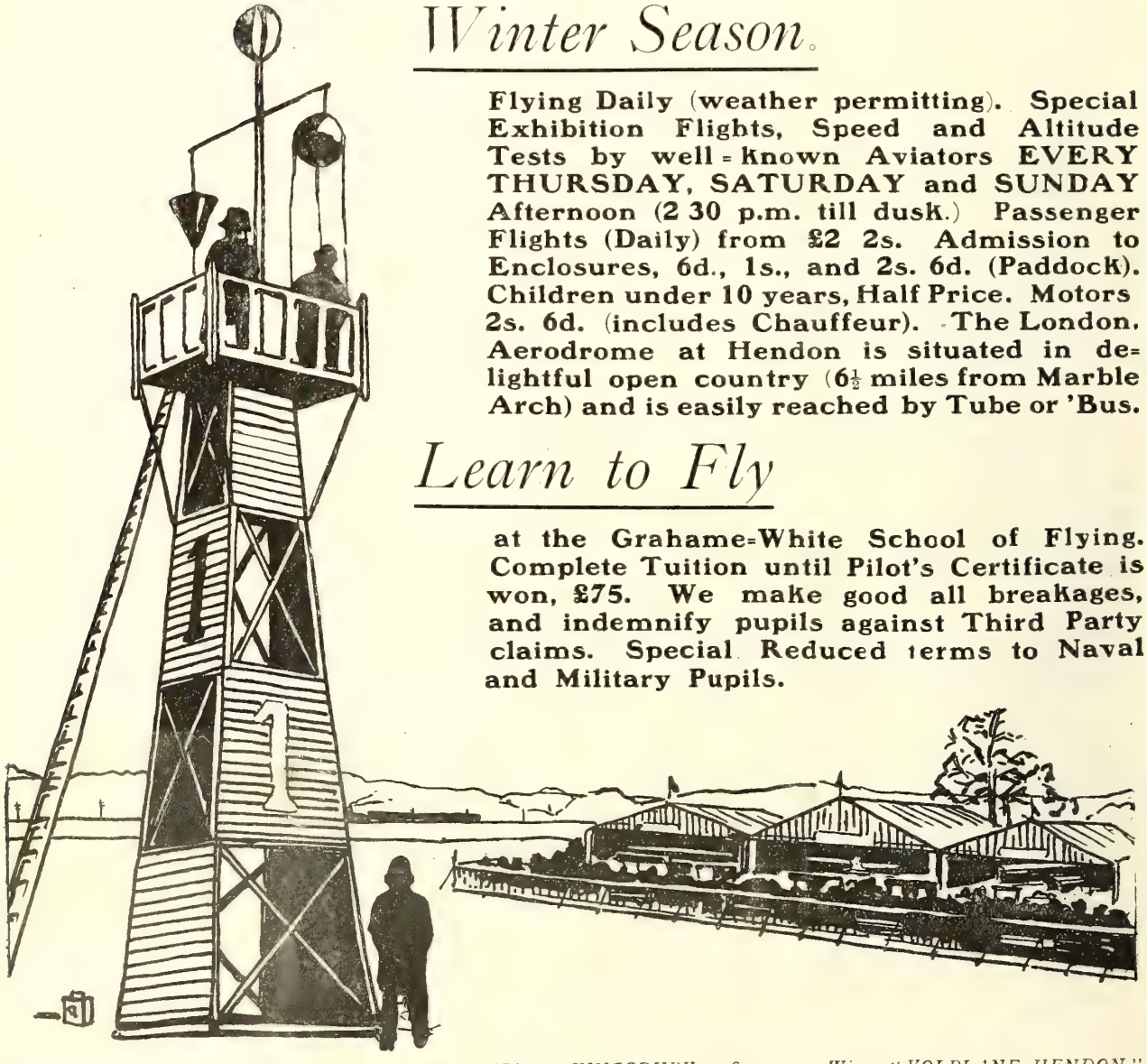
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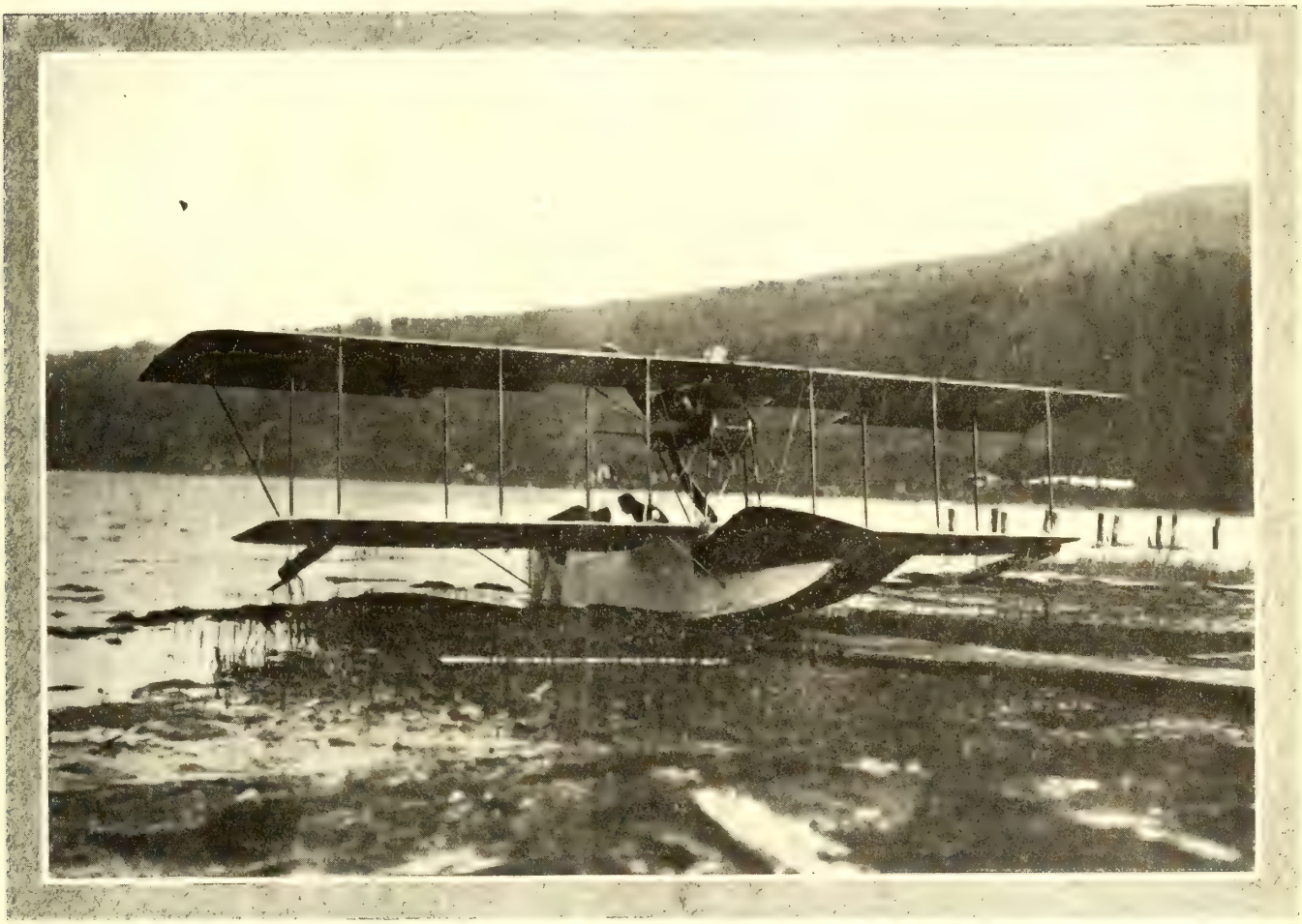
THE AEROPLANE

1d WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, DECEMBER 19, 1912. No. 25.

SHORE LEAVE.



The latest Curtiss Flying Boat beached ready for running up to her shed. The position of the step in the bottom of the hydroplane is clearly shown.

Handley Page Monoplanes.

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Telegrams: "Hydrophid, London."
Telephone: 2574 Victoria.

"Daily Telegraph," Monday, December 9th.

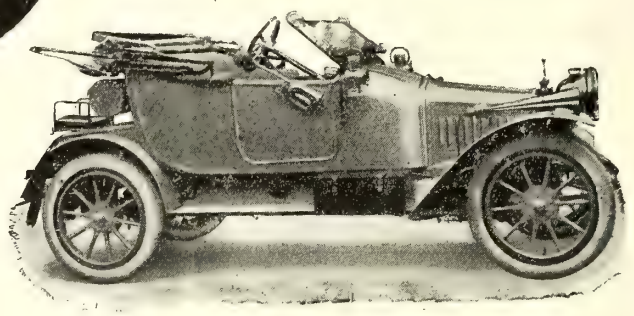
"Saturday was no exception to the rule. The day was a dismal one. Low-lying clouds, a thick mist, and withal a sharp gusty wind in the upper reaches, combined to make the conditions as unfavourable as possible. It was with some surprise, therefore, that we learned, shortly after noon, that the Handley Page monoplane, carrying a passenger in addition to the pilot, had started from Brooklands, where it had been flown the previous week, on its way to Hendon. The journey proved an adventurous one; in spite of the 20-mile wind, the ground was lost from sight in the mist immediately after the start. The monoplane rose to 400 feet, and was thereafter steered by compass. The only landmark seen during the flight was the spire of Harrow Church looming out of the fog. Even from the Welsh Harp, less than a mile away, the aerodrome was invisible, and it was only after circling for some time that the pilot managed to obtain a glimpse of the aerodrome and to effect a landing.

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"The record of the Handley Page monoplane during the last two months has been a remarkable one. It is designed on a principle that endows it with a large measure of automatic stability; accordingly, the machine has been flown in all weathers, irrespective of the strength of the wind, for the purpose of demonstrating its undoubted qualities in this respect."

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Ailerон, London.

On Reporting Accidents.

A few weeks ago an incident happened which one would imagine to be quite unprecedented in the history of British manufacturers of goods of any kind. A note came in from a certain flying school reporting that a certain experimental machine had had an accident, and that the experimental gear which was being tried was a failure. The writer in editing this report, thinking that the owner of the machine might not be altogether pleased when he saw the account in print, ventured to tone down the wording so as to minimise the mistake in the theory involved in the experiment. Much to his surprise, and, be it said, to his joy, the following week a note came along from the owner reporting officially that the experimental gear had been scrapped altogether, and that the report, as published, was too optimistic.

Now there are constructors who would consider the action of that owner distinctly quixotic, but in the judgment of the writer such action is worthy of the highest praise, for the admission of failure is the surest foundation of success, in that it shows the right kind of courage, which knows when it is on the wrong track, cuts its losses, and starts afresh, but above all it shows an altruistic spirit which is most unusual in this commercial age.

Consider for a moment how far advanced aviation would be if the true cause of every accident, serious or otherwise, had been reported in detail by the maker of the machine to which the accident happened. The particular defect, which was very probably due to universal ignorance of the strains on a particular part or the action of certain controls, would have been remedied by every other maker using the same type of fitting, and the general store of practical knowledge would have been increased, with the result that valuable lives might have been saved.

If this had been the custom we should have got rid of the lifting tail box-kite years ago, and probably it would never have been introduced into this country. We should never have fixed ailerons to cabinet-makers' hinges; we should, very possibly, have given up the unnecessarily deep slab-sided fuselage; we should never use aluminium levers for control transmission; we should use really safe guides for control wires; we should make machines which can turn upside down and still protect the pilot; we should, quite probably, have given up warping our wings; in fact, there are quite a lot of things we should or should not do if everyone who has had an accident reported the true cause, when known, to the technical Press for dissemination among all those concerned with aviation. As things are at present it seems to be the main object of every maker here and abroad to make a deadly mystery of every accident which happens to his machines, or even to hide it altogether, whether the accident is caused by the machine or by sheer bad flying on the part of the pilot. As a rule, so far as the maker is concerned, the accident becomes "a secret known to everyone but himself," and generally it has highly artistic trimmings added to it by the loyal henchmen of rival constructors, so that it would really pay any manufacturer to make a special point of publishing an authenticated account of every accident of importance which happens to any of his machines, simply in self defence.

There is an amusing "parlour game," one is told, called "scandal," in which the starter of the game whispers a simple story to his or her next neighbour, who adds a bit to it and passes it on in a whisper to the next, and so on till it comes back to the starter, who then relates aloud the story as it started and as it returns. Here is a fair sample of the same game, as played with felonious intent, in aviation circles: Smith and Brown, the latter as pilot, go up on a Jones biplane side by side. When on the point of landing a gust of wind lifts one side of the machine, which touches a wing tip, swings round, carries away a chassis strut, and Smith bumps his head, in spite of Brown making a grab to save him.

Smith, being a little angry, says that Brown bumped into him, and Brown says the machine was a bit slow answering the warp, owing to the wires being stiff in the guides, or else the wing tip would not have touched the ground.

Robinson, hearing both stories, says the machine was certainly a bit unstable, or Brown would have saved her, and that Smith got in Brown's way, so Brown pushed him out and made him hurt himself.

Black repeats Robinson's story thus: "Nasty smash Brown had the other day. Machine is naturally unstable, and it turned over—near the ground luckily. Smith, who was up with Brown, lost his head, and Brown hit him to prevent him from grabbing the controls. Jolly near thing for both of them."

White turns Black's story into this: "That dud old Jones 'bus of Brown's nearly killed him and Smith the other day. Thing side-slipped and dived, as everyone expected it to, and when Brown found they were both alive he hammered poor old Smith because he said Smith tried to grab the control lever and upset the show."

Green's version of White's yarn is: "Ghastly mess that at Brookdon. Controls of the Jones

machine went wrong—you know what a rotten design the thing is. Smith, who was up as passenger, was flung out of his seat as the machine swung over, and bumped into Brown, who thought he did it on purpose, so he hit him with a spanner and laid his head open. Brown did his best when he'd got Smith stretched, but the thing heeled sideways, sideslipped, did a spiral nose-dive, and came down in a heap. The whole thing crumpled, the engine chewed up everything as far back as the seat, and the rest fell to pieces, as you'd expect Jones's stuff to do. Of course, Brown's only a paid pilot, and daren't say what he thinks of the machine for fear of losing his job, and he swears Smith grabbed the lever and upset the whole thing. When Smith comes out of hospital he's going to have Brown's blood for hitting him, and he's going to sue Jones for damages for sending him up on such a dangerous machine. Of course, the Army people know all about it, and they've cancelled all the orders they had down for Jones' machines, and they're going to fire Brown out of the Flying Corps Reserve for losing his head and assaulting his passenger. When our people turn out stuff like that Jones machine and let fellows like Brown fly it, you can't blame the War Office for buying foreign machines, and you can't wonder most people who know anything about flying prefer French pilots."

Then the person who has heard Green's story looks in The Aeroplane and wonders why there is no report of the smash in that day's "Week's Work" space at Brookdon, and concludes that there is a conspiracy of silence to shield the erring British manufacturer, so naturally he believes the worst and a bit more, whereas if the real cause of the trifling accident had been reported he would have thought no more about it.

He is probably surprised the next time he goes to Brookdon to see Smith and Brown feeding peacefully together in the "Pink Plane" restaurant, and going up together afterwards on a machine exactly like that which nearly cost them their lives, but he puts it all down to the machinations of Jones, who has probably paid Smith to keep quiet. The person who has heard and believed the story never thinks the machine flying is the very one which originated the yarn, and that Smith and Brown have never really fallen out. So the lie goes on circulating and growing, and the reputation of the Jones machines suffers in consequence.

The more machines he builds the more minor accidents happen, and the less he makes those minor accidents known the more they are exaggerated, till at last his reputation as a maker begins to suffer severely, while all the time he has been persuading himself that by hiding every accident he is getting a strong reputation for reliability.

It is hoped that this account of a purely imaginary incident will help to show some people that a little self-criticism convinces the men who have to fly the machines more than does the usual report which pretends that there are no accidents at some schools.

The First Naval Aviation Wedding.

Holy Trinity, Kensington Gore, was on Dec. 11th the scene of the first Naval aviation wedding when Lieut. John Graham Bower, R.N., was married to Doris Violet, daughter of Mrs. H. F. Coghlan White, of Droxford, Hants. A number of Lieut. Bower's brother officers were present at the ceremony, as also were Messrs. Jullerot and Harry Busteed, who taught him to fly. After the wedding a number of the crew of the submarine which Lieut. Bower commands took the horses out of the carriage and dragged the bride and bridegroom to the hotel. The ceremony itself and the reception afterwards at the South Kensington Hotel were thoroughly enjoyable, and everyone will congratulate the bridegroom on having had the luck to win a wife who is not only herself a most charming lady, but one who is thoroughly in sympathy with her husband's sporting proclivities.

Lieut. Bower has had a distinguished career as a submarine officer, and as if that was not in itself a sufficiently risky occupation, he took up flying with equal enthusiasm, quickly showing himself to be a pilot of the very best class. His fine attempt on the Mortimer-Singer prize, with Lieut. Moore, R.N., as passenger, early this year was one of the pluckiest things in the history of aviation, and it was the hardest of luck that it should have ended in a smash severe enough to have damaged both pilot and passenger severely, though fortunately both of them escaped unhurt.

The sportmanship of the happy pair is shown by the fact that they are spending their honeymoon hunting in the Berkeley country. Everyone will wish them many years of sport and a happy old age to follow.

The Expansion of the Avro.

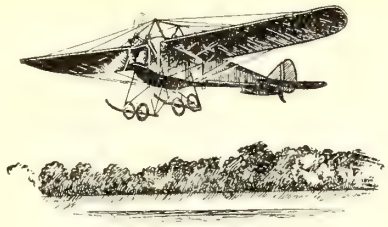
It is a great satisfaction to be able to chronicle good news of A. V. Roe and Co., for Mr. A. V. Roe and his brother H. V. Roe were not only pioneers of aviation, but have kept their machines a little bit in front of date ever since, as is proved by the fact that their tractor biplane was flying successfully nearly two years before tractor biplanes became the fashion, and the writer happens to know that Mr. Roe's latest ideas go considerably past the tractor biplane. On January 1st, A. V. Roe and Co. will become A. V. Roe and Co., Ltd., having secured well deserved financial support from people of extensive influence. This will mean a considerable expansion of the business, and the ability to take large orders when they arrive, though, be it said, the firm have always delivered their orders well to time hitherto.

The 100-h.p. Avro hydro-aeroplane built to the order of the Admiralty will be ready for dispatch at the end of this week, and it will be piloted during its trials by Mr. Stanley Adams, whose experience of water flying on Windermere is very great.

It is also satisfactory to learn that, not before it was due, an order for four more Avro biplanes for the Royal Flying Corps, similar to those already supplied, is being placed by the War Office, which is prima facie evidence that the officers of the Flying Corps are satisfied with the machines already delivered. Various improvements have been introduced in the later pattern Avro machines, and certain details have been patented. Altogether the Avro machine is now recognised as being quite as well built as any machine in this country, for it is fairly certain that it has proved itself on test to be more efficient than any machine yet turned out with a 50-h.p. Gnome. That is to say, it flies faster and climbs faster with a bigger load than anything of its power, including the latest 50-h.p. machines of similar type turned out by the Royal Aircraft Factory, which are recognised as setting a standard of efficiency from which one can gauge the capabilities of other machines. It is only the more regrettable that official red tape should have prevented further orders from being given to the firm, so that they have been compelled to wait while other firms, whose deliveries have been delayed, complete their orders. At any rate, this seems the only possible explanation, unless some adverse influence is at work somewhere. In any case, the machines are so good that they are sure of finding customers abroad, even if neglected by the British Army authorities, and it is fairly certain that those people who have been sufficiently far-sighted to find the funds for the new venture will have little cause to regret their action, provided they permit a bold and pushing business policy to be pursued.

From the Seat of War.

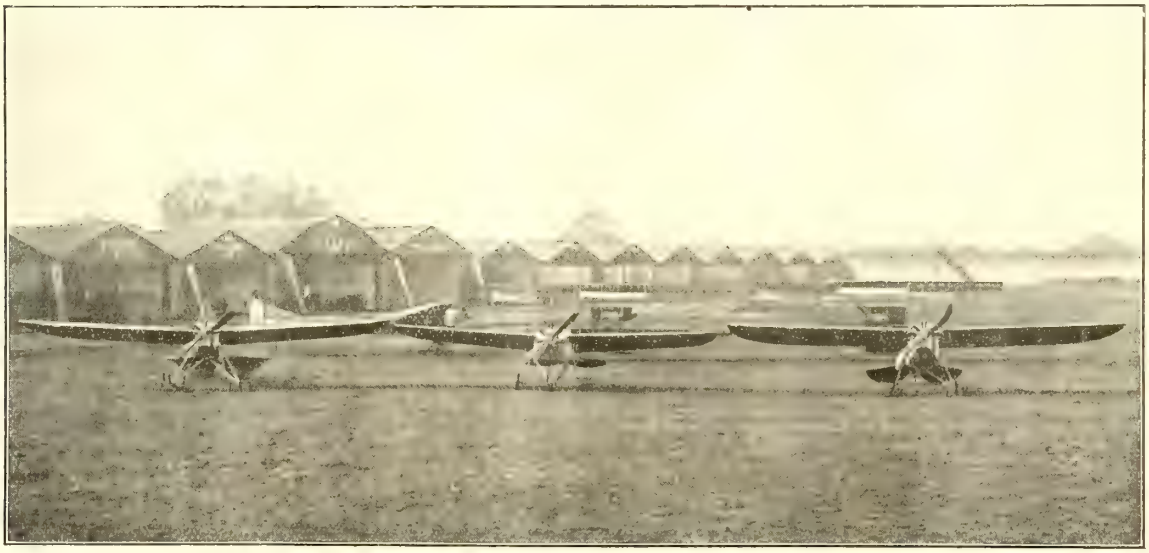
From some place with an illegible name, but with a Bulgarian stamp, comes a post-card from Giovanni Sabelli, bearing a picture of the entry of King Peter of Servia into Uskub, and simply marked "Best regards." No news is good news, so we may assume that our friend Sabelli is still well and hearty.



VICKERS
MONOPLANES

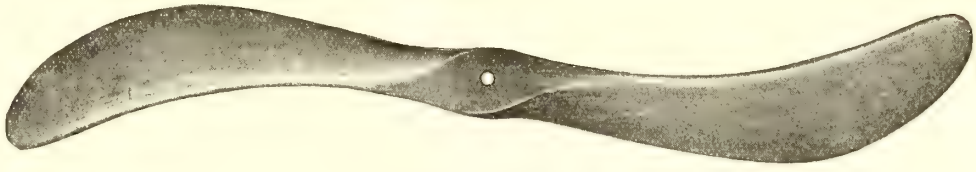
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Dirigibles and the Nations.

BY W. E. de B. WHITTAKER.

There is a tendency in human thought to move in cycles. Each new idea is adopted with avidity only to be relaxed after a space in favour of some further development of an old principle, and in the science with which this paper is associated such a stage has been reached. Ten years ago, when men were groping in the mist of knowledge in search of the key that would reveal the secret of heavier-than-air flight, the dirigible balloon had become a practical possibility. The non-rigid dirigible had many exponents, and Count Von Zeppelin had constructed his first rigid airship—the first flying machine to arouse universal interest, as not only did it fly but it had the appearance of efficiency. Then as the petrol motor improved, so did the range of action of the power-driven balloon increase. After the coming of the aeroplane a series of extensive and costly accidents put the dirigible under a cloud of disfavour, which has only just lifted. As always throughout the passage of time the experts have told us of the impossibility of certain lines of development. There was a limit to speed and size, so we were told, but if so it has not yet been reached. There is much in favour of whole-hearted adherence to a fixed plan, persisting in spite of difficulties, until a stage of perfection has been attained. A succession of failures does not exclude the possibility of ultimate success. Our policy in Great Britain has, of late years, savoured too much of indecision and uncertainty. It is well to hesitate before entering on any set line of action, but after the desired course has been laid down it should be followed in spite of all difficulties.

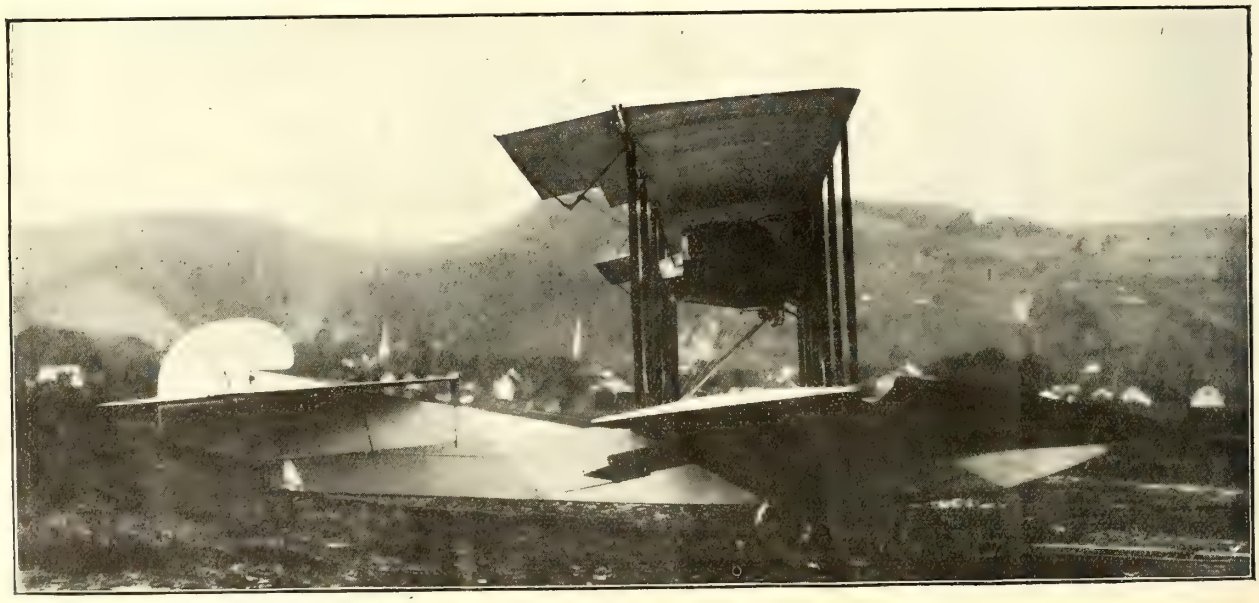
The German Empire has illustrated this in the last twenty years. The Imperial Navy has reached a state of ominous efficiency in spite of the early difficulties. And now in the air Germany is making every effort to become supreme. In aeronautics it is clearly first, and in military aviation it is certainly second among the nations. Recent events, and the revelation of possibilities ought to convey a warning to those in whose hands lie the destinies of the British Empire. The Sheerness affair, amusing though it may have been to those public prints whose editors became awake a day too late, was none the less an actual fact. We cannot identify the airship beyond knowing that it came from the Continent, but its visit points a moral. We, the officially supreme nation of the earth, the arbiter of world policy, are unable to return a call made on us by a powerful rival. What one can do is possible to others.

There is apparently much inconsistency in the British character. For many months the aeronautical correspondents of our leading papers have demanded immediate action from the Government. Action in this case, to be efficient, could only be in one direction. Certain foreign dirigibles have been purchased, and the papers are less satisfied than ever. We are told that it is necessary to have dirigibles. It is manifest that in Great Britain we have not the experience needed to build immediately a dirigible of equal efficiency to those in use abroad, yet when purchases are made in the only market available, the critics are still unsatisfied. It is obvious that home industries should be encouraged, and some orders should be given to competent designers in this country; but in the meantime we must supply our deficiencies from abroad. We cannot expect to find perfection on awakening from a sleep that has lasted a decade.

Another question is the money. An efficient aeroplane can be purchased for £1,000. An efficient dirigible balloon cost something in the region of £30,000, and the Treasury cannot understand the difference. Both fly, yet the prices are not the same. The pseudo experts tell the Treasury through the columns of the newspapers that the cheap aeroplane can eliminate the expensive dirigible from the trouble of existence in a few moments, and somehow there seems to be something wrong financially. The same argument might be used in considering the purchase of battleships or torpedo-boat destroyers.

We, as a country, allot £6,000,000 in the bestowal of old-age pensions. Nothing could be more admirable in itself; but if, in the desire to find the money, the country's defences are neglected, then in the future it is possible that in a state of suzerainty we shall be unable to pay even a fraction of these subventions for the maintenance of the antique poor.

Let the Government set aside enough money to enable the Army and Navy to purchase experience. Each type of dirigible which has gained a fair reputation should be tried, and perhaps in a year or two we



The new Curtiss flying boat. Note the balanced ailerons, and the flatness of the planes.

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France has devoted much money and time in the development of the lighter-than-air type of flying machine, and yet that country views with apprehensions the recent developments in Germany. On December 5, in the "Temps," there appeared a long article comparing the respective conditions of the dirigible fleets of France and Germany, and acknowledging the much higher efficiency of the latter. I reprint the figures and descriptions given in the "Temps."

FRANCE.

Military hangars.—Maubeuge, 1; Verdun, 2; Toul, 1; Epinal, 1; Belfort, 1; Reims, 1; total, 7.

Private hangars.—Issy-les-Moulineaux, 2; Saint-Cyr, 2; Moisson, 1; Lamotte-Breuil, 1; Reims, 1; Chalons-s-Marne, 1; Meaux, 1; Melun, 1; total, 10. Grand total: 17 hangars capable of use. Thirty-two more are about to be built.

Military dirigibles.

Fleurus (1912).—Type Chalais-Meudon, 6,500 c.m. (280 h.p. motors); speed, 58 kilometres per hour. Rigid dirigible with closed compartments, stationed at Saint-Cyr. Nacelle and motor by Clement-Bayard.

Colonel-Renard (1910).—Type, Astra, 4,200 c.m. (one 100 h.p. Panhard motor); speed, 50 kilometres per hour. School dirigible stationed at Issy-les-Moulineaux.

Liberté (1909).—Lebaudy, 4,800 c.m. (one 120 h.p. Panhard motor); speed, 45 kilometres per hour. Stationed at Chalais-Meudon.

Capitaine-Marchal (1911).—Lebaudy, 7,500 c.m. (two 75 h.p. Panhard motors); speed 48 kilometres per hour. Stationed at Chalons.

Adjudant-Vincenot (1911).—Clement-Bayard, 9,000 c.m. (two 100 h.p. Clement-Bayard motors); speed, 54 kilometres per hour. At Toul. Deflated November 7th. Stationed at Verdun.

Le Temps (1911).—Zodiac, 2,500 c.m. (one 70 h.p. Laviator motor). Offered by subscriptions from readers of the "Temps."

Dupuis-de-Lôme (1912).—Clement-Bayard, 9,000 c.m. (two 125 h.p. Clement-Bayard motors); speed, 54 kilometres per hour. At La Motte-Breuil. Stationed at Maubeuge.

Selle-de-Beauchamp (1911).—Lebaudy, 8,000 c.m. (two 75 h.p. Panhard motors); speed, 50 kilometres per hour. At present stationed at Moisson, prior to going to Maubeuge.

Adjudant-Réau (1911).—Astra, 8,950 c.m. (two 120 h.p. Panhard motors); speed, 53 kilometres per hour. Stationed at Verdun

Lieutenant-Chauré (1911).—Astra, 8,950 c.m. (two 120 h.p. Panhard motors); speed, 53 kilometres per hour. Purchase money received from readers of the "Temps." At Issy-les-Moulineaux.

Eclaireur-Conté (1912).—Astra, 6,640 c.m. (two 75 h.p. Chenu motors); speed, 46 kilometres per hour. On trial.

Capitaine-Ferber (1911).—Zodiac, 1,600 c.m. (two 90 h.p. Laviator motors); 54 kilometres per hour. Stationed at Epinal.

Commandant-Coutelle (1911).—Zodiac, 9,000 c.m. (two 190 h.p. Laviator motors).

Spiess-Rigide (1912).—Zodiac, 11,000 c.m. (two 200 h.p. Chenu motors).

Privately owned dirigibles.

Clement-Bayard VI.—6,200 c.m. (two 90 h.p. Clement-Bayard motors); speed, 58 kilometres per hour. In course of construction.

Astra-I (1908).—Astra, 4,475 c.m. (one 100 h.p. Clement motor); speed. 43 kilometres per hour. Belonging to the Compagnie Transaérienne.

Astra-Torres (1911).—Astra, 1,600 c.m. (one 55 h.p. Chenu motor); speed, 56 kilometres per hour. Belonging to the Astra Co.

Croiseur-Transaérien (1912).—Astra, 9,000 c.m. (two 150 h.p. Chenu motors); speed, 56 kilometres per hour. Belonging to the Compagnie Transaérienne.

Zodiac III. (1909).—Zodiac, 1,600 c.m. (one 40 h.p. Ballot motor). Belonging to the Societé Zodiac.

Dirigibles in course of construction or re-construction.

A.—Astra, 17,000 c.m.; 1,000 h.p.; speed, 75 kilometres per hour.

B.—Clement-Bayard, 17,000 c.m.; 1,000 h.p.; speed, 70 kilometres per hour.

C.—Lebaudy, 17,000 c.m.; 1,000 h.p.; speed, 70 kilometres per hour.

D.—Zodiac, 17,000 c.m.; 1,000 h.p.; speed, 70 kilometres per hour. Ordered under the Budget of 5,000,000 frs. of 1913.

X.—17,000 c.m.; 1,000 h.p.; speed, 70 kilometres per hour. Will be ordered after the trials of the previous four dirigibles of 17,000 c.m.

GERMANY.

Military hangars.—Strassburg, 1; Metz, 1; Cologne, 1; Koenigsberg, 1; Reinickendorf, near Berlin, 3; total, 7.

In construction.—Wilhelmshavn (for the Navy), Breslau.

Private hangars.—Friedrichshavn, 2, Vos (Baden-Baden), 1; Mannheim, 1; Frankfort, 1; Dusseldorf, 1; Wanne, 1; Munich, 1; Gotha, 1; Hamburg, 2; Kiel, 1; Bitterfeld, 2; Reinickendorf, 1; Bresdorf (Berlin), 1; Potsdam, 1; Johannisthal, 2; total, 19. Total, 26 hangars in use.

Military dirigibles.

Z-I (1906).—Zeppelin, 12,000 c.m. (two 85 h.p. motors); speed, 58 kilometres per hour. At Metz.

Z-II (1911).—Zeppelin, 12,000 c.m. (two 100 h.p. motors); speed, 57 kilometres per hour. At Cologne.

Z-III (1912).—Zeppelin, 12,000 c.m. (three 100 h.p. motors); speed, 72 kilometres per hour. At Metz.

M-I (1908).—Gross, 5,200 c.m. (two 75 h.p. motors); speed, 45 kilometres per hour. At Metz

M-II (1909).—Gross, 5,200 c.m. (two 75 h.p. motors); speed, 46 kilometres per hour. At Cologne.

P-I (1908)—Parseval, 4,000 c.m. (one 115 h.p. motor); speed, 47 kilometres per hour. At Metz.

P-II.—Parseval, 4,000 c.m. (one 100 h.p. motor); speed, 47 kilometres per hour. At Cologne.

P-III (1911)—Parseval, 10,000 c.m. (two 160 h.p. motors); speed, 60 kilometres per hour. At Koenigsberg.

Siemens-Schuckert.—Krell-Ditzuis, 13,000 c.m. (four 120 h.p. motors); speed, 71 kilometres per hour. Station indefinite.

L-I (old L-Z-14).—Zeppelin, 22,000 c.m. (three 145 h.p. motors); speed, 75 kilometres per hour. Johannisthal. For the Navy.

Privately owned dirigibles.

Hansa.—Zeppelin, 19,000 c.m. (three 145 h.p. motors); speed, 75 kilometres per hour. Station undecided.

Viktoria-Luise.—Zeppelin, 19,000 c.m. (three 145 h.p. motors); speed, 74 kilometres per hour. Station undecided.

Schutte-Lanz.—Schutte, 20,000 c.m. (two 270 h.p. motors); speed, 75 kilometres per hour. Mannheim.

P.L-I.—Parseval, 3,200 c.m. (one motor).

Stolhwerck (old P.L-6).—Parseval, 7,500 c.m. (two 110 h.p. motors). At Johannisthal.

P.L-9.—Parseval, 1,800 c.m. (one 50 h.p. motor); speed, 28 kilometres per hour. Aerial Society.

Ruthenberg.—Ruthenberg, 1,200 c.m. (one 24 h.p. motor). Hamburg.

Clouth.—Clouth, 2,000 c.m. (one 48 h.p. motor); speed, 36 kilometres per hour. At Cologne.

Auchard.—12,000 c.m. (two 110 h.p. motors). Deflated at Hamburg.

Wech.—Wech, 6,780 c.m. (two 180 h.p. motors). Munich. Deflated.

Gans Fabrice.—Doubtful.

Steffen.—500 c.m. Kiel.

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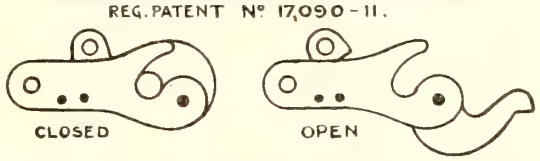
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L.Z-15.—Zeppelin, 19,000 c.m. (three 145 h.p. motors). Delag Society.

P.L-10.—Parseval, 1,800 c.m. (one motor). Aerial Society.

P.L-12.—Parseval, 8,000 c.m. (two 110 h.p. motors).

P.L-14.—Parseval, 10,000 c.m. (two 200 h.p. motors). For the German Army.

P.L-15.—Parseval, 6,700 c.m. (two 110 h.p. motors). For the Italian Army

Veeh-2.—8,000 c.m. (two 150 h.p. motors).

P.L-16.—Parseval, 10,000 c.m. (two 200 h.p. motors).

P.L-17.—Parseval, 10,000 c.m. (two 200 h.p. motors.

P.L-18.—Parseval, 10,000 c.m. (two 200 h.p. motors).

P.L-19.—Parseval, 10,000 c.m. (two 200 h.p. motors).

M-4.—Modified Gross, 5,200 c.m. (two 100 h.p. motors).

M-5.—Modified Gross, 5,200 c.m. (two 100 h.p. motors).

M-6.—Modified Gross, 5,200 c.m. (two 100 h.p. motors).

The three last dirigibles are in the course of construction and are practically finished.

(To be continued.)

Naval and Military Aeronautics.

GREAT BRITAIN.

The following is the establishment of the Naval Wing, Royal Flying Corps, as shown in the Army List for December :—

Naval Wing.

Parent ship, H.M.S. "Actæon": Capt. Johnson, C.B., M.V.O., R.N.

Aeroplane Section.

(Naval Flying School, Eastchurch.)

Officer Commanding : Samson, Comdr. C. R., R.N. (*acting*).

Squadron Commander : Gregory, Lieut. R., R.N.

Flying Officers : Seddon, Lieut. J. W., R.N. ; Parke, Lieut. W., R.N. ; Grey, Lieut. S. D. A., R.N. ; L'Estrange-Malone, Lieut. C. J., R.N. ; Gordon, Capt. R., R. Mar. ; Hewlett, Sub-Lieut. F. E. T., R.N.

For Machinery and Overseeing Duties : Briggs, Eng.-Lieut. E. F., R.N. ; Scarff, Artif.-Eng. F. W., R.N.

Medical Officer : Wells, Staff-Surg. H. V., R.N.

Under Instruction : Courtney, Lieut. C. L., R.N. ; Berne, Paymr. E. R., R.N. ; Marix, Sub.-Lieut. R. L. G., R.N.V.R. (*acting*); Littleton, Sub.-Lieut. H. A., R.N.V.R. (*acting*); Bobbett, Boatswain H. C., R.N.

For Repair Work : Collins, Carpenter J. V., R.N.

Airship Section.

(Arnold House, Farnborough.)

Officer Commanding : Masterman, Comdr. E. A. D., R.N.

Squadron Commander : Usborne, Lieut. N. F., R.N.

Undergoing Airship Course at Farnborough : Boothby, Lieut. F. L. M., R.N. ; Woodcock, Lieut. H. L., R.N.

*Under Instruction at Central Flying School : Shepherd, Lieut. P. A., R.N. ; Risk, Capt. C. E., R. Mar. ; Wildman-Lushington, Lieut. G. V., R. Mar. Art. ; Courtney, Lieut. I. T., R. Mar.

For Wireless Telegraphy Duties with Aircrafts : Fitzmaurice, Lieut. R., R.N.

* Borne in "President."

FRANCE.

On December 8th, at Buc, two Henry Farman biplanes were passed by a military commission for service at Biskra. Chevillard put them through the necessary tests.

Lieutenant-Aviator Mauger Devarenne flew on a Maurice Farman biplane, with Sapper Plantevin as passenger, from Verdun to Reims in one journey on December 9th. The flight was made at an average height of 3,000 feet. The weather was distinctly unfavourable.

The ninety-nine officers, N.C.O.'s, and men undergoing aviation courses at Saint Cyr, Reims, Chalons or Avor reassemble at Versailles on December 16th for a three weeks' course in theory.

On December 9th there was a concentration at Nancy of officer-aviators. Lieutenant Mauger Devarenne came from Reims, Lieutenant Vitrat from Saint Cyr, Lieutenant Vogoyeau from Epinal, and Quartermaster Quennehen also from Epinal.

Lieutenant-Aviator Morel, flying a Sommer biplane (70-h.p. Renault), travelled on December 9th from Mourmelon to Buc between 10 a.m. and noon. The following day he made the return journey. On both occasions he was accompanied by Lieutenant Ragot.

A landing ground is in formation at Rouen under the auspices of the A.G.Ae.

A hangar has been accepted by the Ministry of War, and is situated at Melun.

The town of Cambrai has offered a Blériot monoplane to the army. M. Blériot is himself a native of this town and it is appropriate that such a gift should be made. The new avion is to be named "Ville de Cambrai."—W.

GERMANY.

Cologne and surroundings will be again the scene of aerial manœuvres soon after Christmas, when it is proposed to test a number of dirigibles in night-work under war conditions as well as for the instruction of a fresh batch of soldiers. A "Z" and a "Parseval" are certain to take part. It is not yet decided whether a "Gross M" will be sent to Cologne.

Despite the secrecy maintained by the German Naval Department as to the ultimate end the territory acquired near Cuxhaven was to serve, it is now an established fact that the ground is to be turned into a station for the Naval Air Corps that will be formed shortly. This corps will at first comprise two hundred officers, non-commissioned officers and sailors and will be increased as is seen fit. The naval Zeppelins will be housed here, and a hangar capable of sheltering two of these dirigibles erected on the ground.

The Leipsic Automobile Club was the scene of a meeting of amateur aviators last week, who discussed the formation of an amateur club for the furtherance of sporting and touring interests solely, as all existing bodies include industrial purposes of some sort. Should the constitution take place, and there is no need to question this, then a number of machines will be acquired and twenty pilots at least instructed annually to form a strong nucleus for the Pilot Volunteer Corps which is to be formed as soon as the regulations governing its formation have been accepted.

The Schütte-Lanz airship has now been taken over by the German military authorities, after fulfilling all the conditions set it in three separate tests, namely, altitude, speed—when a mean of 19.5 metres per second (42 miles per hour) was achieved—and duration. The duration trial was for sixteen hours and the dirigible exceeded this by thirty minutes. The new ship was built at the Lanz works, near Mannheim, on principles laid down by Professor Schütte and had a very chequered career in the first years of its construction—in fact, it was believed at one time that the airship would never be usable even if finished. Improvements and alterations have, however, led to the above happy results. Built on the rigid system, the Schütte-Lanz has a capacity of 20,000 cubic metres and a length of 130 metres (420 feet) over all. The body is built of light wood lattice work. The three nacelles are connected to the body by wire cables, the centre car accommodating eighteen passengers. The two motors develop 550 h.p.

The German War Ministry has granted a sum of ten thousand marks to the Silesian Aero Club towards a flying meeting to be held at Breslau next year.—B.

ITALY.

The promotion of Captain Piazza to be Major Piazza is announced. Naval Captain Scelsi, of the Dirigible Section and pilot of the Curtiss type hydro-aeroplanes, is promoted to be "Commander of a Battleship." Beginning with January 1st next, a course of aero-mechanics will be held at the Aerial Institute at Turin, which officers and non-com. officers destined to the Aviation Battalion are required to attend. A flying ground, with workshops for testing motors and other experimental and scientific research, will shortly be opened at Turin. Cross-country flights by officers between Turin and Malpensa and between Aviano and Padua, Venice, Treviso, Udine, and other towns, have now become too frequent to merit special mention. An undercarriage, with wheels independent of each other, has been under test on a Bristol monoplane at Venaria (Turin) and has given good results. The device is the invention of an officer of the Air Battalion.—T. S. H.

Italy has now one of the most efficient air corps in the world. The experience of war has aided greatly. The personnel is

divided into two battalions—one for aviation and one for aeronautics. Four aviation centres exist at Aviano, Pordenone, Somma-Lombardo, and Mirafiore. Military observers are selected from the General Staff. Pilots may be civilians, but must have a clear knowledge of military formations. Four types of dirigible balloons are in use, as follows: (1) Type P (small), 4,500 cubic metres, speed 50 kilometres an hour; (2) type M (larger), 8,000 to 12,000 cubic metres, 400 h.p., speed 70 kilometres an hour, radius of action 1,000 kilometres, capable of 35 hours' consecutive flight; three are in existence; (3) type G (largest), description unknown; (4) the "Forlanini," 12,000 cubic metres, 160 h.p., 72 kilometres an hour. In construction.

The Italian Navy has ordered nine Borel hydro-monoplanes to be delivered within three months at Venice. A Paulhan-Curtiss hydro-biplane, "Flying Boat" type, has also been ordered.—W.

On December 7th the official trials of a Bristol 80-h.p. British Military concours-type monoplane were continued in the presence of Colonel Moris, Commander General of the Italian Military Aviation Service; Major Douhet, Commander of the Aviation Battalion, which has its headquarters at Turin, together with a large number of officers of the aviation battalion. Captain Dickson and Mr. White-Smith of the Bristol Company were also present, and a large public assembled.

Flights were made by Mr. Howard Pixton, the machine carrying 4½ hours' petrol and oil, passenger and pilot weighing 350 lbs. The passenger on one of the flights was Captain W. Rebikoff, a Russian officer of the Aviation Branch of the Russian Army.

The most important flight of the day was a climb of 1,000 metres which was brilliantly accomplished in 13 minutes—thus establishing an Italian record. In the descent Mr. Pixton executed some thrilling glides and dives, spiral glides and banked turns which evoked the applause of all the Italian Military Authorities present and of the public. When Mr. Pixton alighted Colonel Moris warmly congratulated him on his fine display of the machine's merits.

On the 9th instant a speed trial was carried out with fuel for 5½ hours and carrying a passenger—weight with pilot 350 lbs.—Captain Dickson, the well-known aviator, being the passenger. The average speed attained was 115 kilometres per hour. It must be noted that the evolutions so brilliantly executed were made in a relatively small area, which greatly enhances the success attained. On the 10th, four flights, with evolutions, were made by Mr. Pixton, carrying each time as passenger an officer of the Italian Aviation Battalion, and they all without exception pronounced that they had never mounted a steadier and generally a better machine than the Bristol.—T. S. H.

DENMARK.

Two officers of the Royal Navy possess their aviators' certificates—Lieutenants Ullidtz and Christianson. The naval aviation school has three pupils, H.R.H. Prince Axel, cousin of the King, and Ensigns Laub and Holch. A Donnet-Leveque hydro-biplane is to be purchased. A Danish biplane fitted with an 80-h.p. Gnome will shortly be added to the establishment. Captain (naval) Gorde, accompanied by the president of the Aeronautical Society, has visited France, Germany, and England to study the question of hydro-aeroplanes.

The army has an aviation school with several old aeroplanes, including a Danish monoplane. The first pupil to pass the tests for a pilot's certificate is Lieutenant Ussing.

CONTINENTAL NOTES.

France.

Colonel Everett, of the Australian Army, and Lieutenants Burroughs and Harvey, who are referred to as "of the British Army," are announced in the French press as being at the Farman School at Etampes learning to fly these machines.

A later report says that Major Maitland and Lieut. Muller of the "English Army" received their baptism of the air from the pilot Gouguenheim (this of Major Maitland, who has already broken a leg flying, and who has made various flights with officers of the Royal Flying Corps, besides being himself an excellent pilot of small dirigibles). It is further reported that Colonel Everett, "Commandant" Masterman—actually Commander, R.N.—and Lieut. Burroughs have made rapid progress and are ready for their brevets, and that Major Maitland and Lieut. Muller, "enchanted by their first ascent," have decided to join their comrades and are going to commence their apprenticeship.

The well-known Renault motor firm have shown their patriotism by presenting a Maurice Farman machine to the French Army. This machine was tested recently at Buc by the Farman pilot Bernard. It seems likely to be some time before the volume of business in this country warrants a British engine firm presenting one of its engines and a complete aeroplane as well to the British Army out of the profits of Government orders.

The French aviators Olivier and Paillard have written from Mustapha Pasha that they are happy to announce that the construction of the Russian and German copies of the Farman biplanes which are in possession of the Bulgarians is far from equalling French workmanship and emphasise the qualities of the Farman machines.

Those who follow with interest the trend of design in France will remember a strange-looking Blériot monoplane of the "tail first" type. Since the late months of 1911 nothing had been seen of this machine until a day or two ago, when it was announced that M. Blériot had, as passenger, accompanied M. Perreyon on a flight in this machine. They flew for some considerable time over the Buc aerodrome, rising, descending, turning to right and to left, banking heavily—in fact, manœuvring as though the new type were as well tried as the old.

Miss Trehawke-Davies visited Buc on December 10th and took delivery of a 70-h.p. Gnome-engined two-seated Blériot monoplane. With Perreyon as pilot, she made an excellent flight in the neighbourhood of Buc. She also flew with Mr. Valentine.

M. Gilbert flew from Issy-les-Moulineaux on December 10th at three in the afternoon on a Sommer monoplane fitted with a Rhone rotary motor. After visiting Villacoublay he returned to Issy. His motor has so far given no trouble whatsoever.

The two inseparables, Martinet and Legagneux, in search of fresh experience, have purchased a Paulhan-Curtiss hydro-biplane. At present it is housed in a hangar at Corbeaulieu.

Tetard has made several flights recently on a Sommer biplane fitted with an 80-h.p. eight-cylinder De Dion motor. He has flown several times for two hours without trouble.

M. Garros has the intention of flying from Turin to Rome during the course of the next few weeks. The journey will be attempted on his Morane-Saulnier monoplane.

Germany.

Blériot's claim against the German Aviation Ground Co. and the counter-claim of the latter was again before the law courts at Frankfort after three years of futile hearings and part decisions. Blériot was engaged to fly on September 26 and 27, 1909, at Johannisthal and received the sum of 20,000 marks on account—this being the first day's fee. The company later sued him for the return of that money, stating that he had not fulfilled his agreement, and for damages and losses resulting thereby, to the tune of 20,000 marks. Blériot, in turn, demands the second day's fee and his expenses for transport. The court in the hearing referred to above decided that Blériot has to make a statement on oath that he carried out flights of two minutes' duration on both the days. If he takes this oath, then the company has to pay him the remaining sum of 20,000 marks, if not Blériot will have to return the monies received and the damages as assessed. A somewhat involved verdict, greatly dependent on that little word "if."

A striking instance of the interest taken in German official circles in aviation is afforded by the fact that the Postmaster-General sent a telegraph official to the Leipsic-Lindenthal ground to be instructed in aviation with a view to its utility in the colonies. The young man, whose name is Lenk, has now received his brevet as pilot and is said to have passed his examinations in excellent fashion.

There was considerable activity at the Mayence aviation ground, which is comparatively little known, in November. Eighty-two ascents were made on fifteen days, all the pilots using Goedecker aeroplanes. Dr. Waal by far outstripped all his rivals, as his net flying-time comes to nine hours thirty-four minutes. No accidents of any kind took place during the month.—B.

Italy.

Casting the eye over the past year in an attempt to review our progress in the ways which have no "bumpy" paving of good or bad intentions, one is struck with the sense of finality in machines and absence of outward evidences of aspiration towards better things among the constructors and pilots of Italy. Exactly one year back the same things were being bought, the same phrases used. There exists an adage, often pernicious, which runs, "Well is the enemy of Better." It would be better abolished altogether!

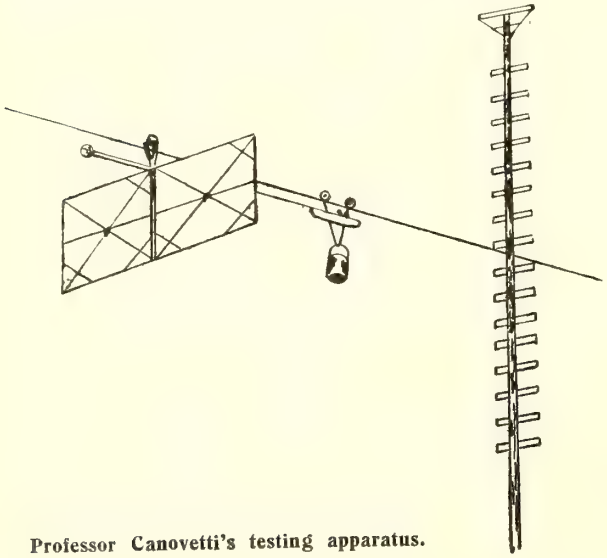
Reminiscences being a habit of the season, here as elsewhere, Captain Falchi, who as well as doctor is also an aviator, and an unusually observant man at that, has published a few lines of reminiscences of his experience during the late conflict in Libia, in which he tells of some makeshift provisions against accidents adopted by him, and consequently copied by his colleagues of the Air Corps. After a certain officer got wounded in his foot whilst flying, Falchi fixed a stirrup strap to the foot control of his mount to slip over the heel of the wounded member, and so gave a rough but sufficient one-foot control. Again, after a Bowden wire went wrong and he found himself with the throttle closed, all springs were fitted so that, in the event of a similar thing occurring, the engine would get full gas. As an expedient in the absence of lifebelts, inner tubes were used and were found quite efficient, and would have formed an excellent buffer as well, being worn round the chest two or more "as the physician shall direct"—according, that is, to the weight of the pilot and size of the tube. He considers it quite probable that the casque will be made compulsory for military flying shortly. How curious that this regulation should be necessary.

This being also the season of general meetings, the Italian Aero Club, who are losing Prince Potenziani, their president, recently met to consider the club's future position. It was decided to keep aloof from official Government recognition, as also from military impregnation, while cultivating sweet friendship with both parties. The proposal made by some members of the Committee to translate the club's headquarters from Rome up to Milan or Turin was not decided upon. There is much to be said for not leaving the capital, which has already been deprived of the military flying element, and yet must be recognised as the very heart of Southern Italy, which is, even as it is, only too backward in the practical side of aviation. Captain (now Major) Piazza was instructed to go forward with the projected landing places scheme.

I gather that Turin has seen a lot of flying during the last few days, stirred up by Mr. Pixton's fine flights on behalf of the Bristol Co. I learn from the firms there that their pilots were bent on emulating his doings, as were, too, the officer-aviators themselves. The English firm has reason to be proud.

Further details of the motor competition, in which 1 lb. per horse-power will be allowed to water-cooled engines as necessary extra-weight (construed as a prejudice in favour of air-cooling), have caused some misgiving. Chiribiri is building a new 80-h.p. eight-cylinder air-cooled motor, but the F.I.A.T., S.P.A., Helios, and others will stick to water for cooling purposes.

For the military trials, so long in coming to a head, I hear from Pordenone of the entry of an unusual monoplane entirely constructed of red fibre, even the wing surfacing being of the same material. It is of large dimensions, exquisitely finished, and appears of great strength; a 100-h.p. motor is fitted. The use of fibre in lieu of wood or metal as an experiment is quite novel and possibly may be instructive, if weight is of little account, as appears. Signor Andervolti is the designer.



Professor Canovetti's testing apparatus.

Prof. Canovetti's experiments continue to attract attention. To me the great feature of them consists in the actual flying condition of the foil being reproduced. The plane of fairly normal proportions is allowed to glide on a wire through the air, resistance and timing being recorded by a complicated electrical apparatus. Some idea of the way this is accomplished may be gathered from the drawing, taken from a photograph. —T. S. Harvey.

The Aeronautical Society Meeting.

On Wednesday of last week Dr. Glazebrook took the chair at a meeting of the Aeronautical Society, at which Mr. A. M. Harper lectured on the mathematics of the stability of aeroplanes. One gathers from those who were able to understand the lecture that it was of absorbing interest, and quite half-a-dozen members of the Society who are mathematically inclined raised between them an animated debate on the hieroglyphics exhibited. One gathers from those who were able to follow the discourse that the figures bore out the reasons for the stability of the Handley Page and other automatically stable machines, and it is interesting to find that it has been possible to explain these machines mathematically not so very long after they have demonstrated their qualities practically. It is, however, to be hoped that at succeeding and less erudite lectures a considerably greater number of members of the Society will be present.

The fourth meeting of the Society will be held on Wednesday, January 15th, at 8.30 p.m., at the Royal United Service Institution, Whitehall, when Professor W. C. Unwin, F.R.S., will preside. Mr. F. Handley Page, A.F.Ae.S., will read a paper, to be followed by a discussion, on "The comparison of monoplanes and biplanes, with special reference to the stresses in each type."

The following have been elected members of the society: E. C. Midwinter, Lieut. Wilfred Parke, R.N. (since deceased), and the following have been elected students of the society: John Chaloner, Manuel Cunha, W. F. Potter, G. Horsley Porter.

The Institution of Automobile Engineers.

The sixth volume of the Proceedings of the Institution of Automobile Engineers will be issued early in the New Year, and will contain papers by Mr. L. A. Legros, Mr. Howard Coffin, Mr. L. H. Pomeroy, Mr. D. J. Smith, Mr. G. F. Barrett, Mr. G. de Havilland, Mr. J. J. Guest, Prof. Morgan, and Mr. R. G. L. Markham.

The volume is issued free to members of the Institution, and can be obtained by non-members at £1 1s. per copy.

The paper to be read before the Institution of Automobile Engineers on January 8th at the Institution of Mechanical Engineers, St. James's Park, S.W., at 8 p.m., will be entitled "The Training of Automobile Engineers." The subject has been dealt with by four members of the Graduates' Committee, who have themselves only recently completed their training, and should therefore be in a very good position to speak as to the advantages and disadvantages of the various systems.

Those engaged seriously in aviation should make a point of attending the meetings of the Institution with a view to becoming members.

A World's Record for Africa.

M. Garros has at last achieved his recent ambition and again captured the world's height record. Finding the air conditons in France unsuitable, he crossed to Tunis, where during the last two weeks he has made several attempts to rise to a record height. On one occasion he rose to a height of 5,000 metres, but came down owing to air-sickness. On December 11th he made a further attempt on an 80-h.p. Gnome-engined Morane-Saulnier monoplane (built for the Circuit d'Anjou). He started his flight at ten minutes past noon. He landed at 1.21 p.m., having in the meantime reached an altitude of 5,801 metres (19,030 feet).

Another Chauviere Success.

The aviator Garros, flying a Morane-Saulnier monoplane with a Gnome motor on the 11th inst., beat the world's record for height by reaching 5,801 metres, this wonderful feat having been attained by using one of Chauviere's Integral propellers.

Concerning the Astra-Torres.

A well-informed correspondent in Paris writes that the Astra-Torres dirigible ordered by the Admiralty will be bigger than any of the Astra-Torres machines so far built by the Astra Company, and will embody a number of new features in their design, but it will not be as large as the "Ville de Paris" or the later German "Parsevals."

Questions in the House.

The following are the most recent questions put in the House of Commons on the subject of aerial defence, together with the answers given, and a short commentary thereon.

December 10th, 1912.

AIRSHIPS.

82. Mr. NORTON-GRIFFITHS asked whether Germany has sixteen airships and money voted for an additional ten; and what the position of Great Britain is.

Mr. CHURCHILL: Germany possesses the following airships: 1 naval, 9 military, 14 private—but of these, 7 are under 3,500 cubic metres volume and are of little value, and one other, the "Suchard," is built for an attempt to cross the Atlantic; £97,847 was voted in the German naval estimates for 1912-13 for airships and experiments with airships; £144,325 is included in the German naval estimates for 1913-14, not yet voted, for aeronautics, aviation, experiments and special allowances.

As to Great Britain, the Royal Flying Corps possesses the following airships:—Military Wing: "Beta," "Gamma," "Delta," and a new "Gamma" under construction, to the cost of which naval funds will contribute half.

[It may be worth while to state that of these the "Delta" has not yet proved herself to be airworthy, and none of them would be of the slightest use in war except against uncivilised countries not provided with aircraft.]

Naval Wing: 1 Willows airship; 1 Astra Torres, and 1 Parseval, on order.

[None of these would be of service against the modern Zeppelin.]

December 11th, 1912.

AIRSHIPS.

10. Sir JOHN LONSDALE asked whether any airships have been ordered for the Navy from Germany.

Mr. CHURCHILL: The answer is in the affirmative.

ARMY AIRSHIPS.

43. Mr. JOYNSON-HICKS asked the Secretary of State for War what is the total number of biplanes, apart from school machines, in use in the Military Wing of the Royal Flying Corps; how many machines, biplanes and monoplanes, are on order; and how many machines have been ordered since September 30th?

The SECRETARY OF STATE FOR WAR (Colonel SEELY): Fourteen biplanes are in use in the Military Wing, three of which are at present under repair. Sixteen machines are on order. No machines have been ordered since September 30th, but tenders for eighteen have been invited.

Mr. JOYNSON-HICKS: Does that apply to work conducted at the Aircraft Factory?

Colonel SEELY: Of course, the tenders apply to outside firms.

[That only tenders for 18 machines should have been invited since September 30th is nothing short of criminal negligence on the part of those responsible for the development of the Flying Corps. If those machines were ordered to-morrow, none of them could be delivered before February. If we are to have an effective Flying Corps, and if we are to have factories capable of building machines for that Flying Corps in the course of the next twelve months, machines must be ordered in reasonable quantities from the firms capable of supplying them without waiting till overdue machines are delivered. Further, of the fourteen biplanes in use in the Military Wing, only very few are actually fit for war service, and of these either five or six have been built in the Royal Aircraft Factory, so that at the present moment, while the flying of monoplanes is forebidden, our total available aerial fleet is eight biplanes built by outside firms, and yet the authorities wonder why British manufacturers do not equip themselves so as to supply machines immediately they are wanted, and high officials impute lack of business enterprise to manufacturers.]

ROYAL FLYING CORPS.

44. Mr. JOYNSON-HICKS asked what progress is being made in the organisation of the Royal Flying Corps as outlined by him; and whether one aeroplane squadron out of seven promised has yet been placed upon an efficient basis?

Colonel SEELY: Steady progress is being made. One airship and kite squadron, three aeroplane squadrons, the Flying Depot, the headquarters Military Wing, and the Central Flying School have been formed, but the personnel of these units is not yet complete.

Mr. JOYNSON-HICKS: Does a squadron which is formed mean a squadron which is ready to go to war?

Colonel SEELY: It is a little difficult to say in a new art like flying, and a new thing like the Royal Flying Corps, that it would be ready to take the field, but, as I have said, steady progress is being made.

Mr. JOYNSON-HICKS: Are they squadrons on paper, or are they effective?

Colonel SEELY: They are not squadrons on paper; they are very real, and have made a very great advance.

[Again we find "the master of bland evasion" at his favourite occupation. Certainly "steady progress" is being made, but so steady that it is almost imperceptible. It is quite true that the personnel of the squadrons already formed is not yet complete for there are neither machines nor sheds for their equipment. Not a single squadron is on a war footing, nor is capable of being put on a war footing.]

55. Mr. JOYNSON-HICKS asked how many applications to join the Royal Flying Corps have been received since its formation and how many have been accepted; how many applications have been rejected and what were the reasons for rejection; and how many candidates have been rejected since September 30, and is one reason for rejection the lack of facilities to train them?

Colonel SEELY: There have been 198 applications from officers and civilians. Of these 154 have been accepted, 25 were rejected, and 14 are under consideration. Fifteen of these rejections took place after September 30th. All the rejections were due to the unsuitability of the applicants and none to lack of facilities for training.

[It may be perfectly true that none of the candidates for the Flying Corps who have been rejected were rejected owing to the lack of facilities for training, but it is true that there are not facilities for training anything like the number that have been accepted, the result being that the Central Flying School will be quite unable to train an adequate number of pilots next year unless the staff, equipment, and accommodation are largely increased.]

56. Mr. JOYNSON-HICKS asked whether money is still available, without a Supplementary Estimate, to complete the development of the Royal Flying Corps and Central Flying School in accordance with the promise of the Secretary of State in April last?

Colonel SEELY: The reply is in the affirmative.

[If, as Colonel Seely states, money is still available to complete the development of the Royal Flying Corps, one can only say that its development has been marked by the grossest incapacity so far as the business management of the Corps is concerned. So far as the purely military portion of its development is concerned, the work has been an excellent example of making bricks without straw. The training of pilots at the Central Flying School has been thoroughly sound although hampered by insufficient machines, and the work of organisation of the aeroplane squadrons has been efficiently done, so that as soon as more men and machines are forthcoming, they can be placed on a proper footing at once. If, therefore, the Treasury is not to blame for the present state of affairs, the root of the evil must be the hide-bound methods of the Army Contracts Department, or else excessive caution on the part of the Master General of the Ordnance.]

ARMY (AVIATION).

61. Mr. JOYNSON-HICKS asked how many military officers hold the superior certificate of the Royal Aero Club; and whether less efficiency than that necessary to obtain such a certificate is considered to constitute a trained military pilot?

Colonel SEELY: No information regarding the first part of the question is available at the War Office. As regards the rest of the question, the standard reached by officers who have qualified at the Central Flying School or with the Military Wing is considered as high as that required for the Aero Club's superior certificate.

Mr. JOYNSON-HICKS: Cannot the right hon. gentleman ascertain how many hold this certificate?

Colonel SEELY: Of course we can, but we could not ascertain it so easily as the hon. gentleman himself. I wanted to emphasise the fact that we do not ask of officers a return on this point.

[Colonel Seely has evidently been misled as to the relative values of performances on aeroplanes. No one will deny for a moment that those officers who have qualified at the Central

Flying School are exceedingly good fliers so far as the handling of their machines is concerned, but not more than one or two of them have ever made a cross-country flight of fifty miles out and fifty miles back over an unknown course, as in the test for the Royal Aero Club certificate, and this is a most important test where military aviators are concerned, though it is an exceedingly easy one compared with the French military tests. Consequently, practically none of the pilots who have completed the course of instruction at the Central Flying School can really be reckoned as trained military pilots.]

62. Mr. Joynson-Hicks asked whether the aeroplanes stated to be overdue from British manufacturers have been delayed in delivery through the dilatoriness of Government inspectors or through alterations in the official designs after certain parts had been constructed; whether the fifteen machines on order are supposed to be sufficient to supply the Royal Flying Corps with an adequate number of aeroplanes; and, if not, why no further orders have been given?

Colonel Seely: The delay in completion of the aeroplanes due from British manufacturers has not been caused by any dilatoriness on the part of Government inspectors, but the necessity for constant inspection may have caused a portion of the delay in some cases. Further orders are being placed.

[This answer again is an evasion, and Colonel Seely has actually deliberately avoided the question as to whether the fifteen machines on order are supposed to be an adequate supply.]

Clement Bayard Airship.

60. Mr. Joynson-Hicks asked whether the Clement Bayard airship, which cost this counry £18,000, still exists; if not, whether any use is being made of her engines and other equipment; and, if so, what use?

Colonel Seely: The airship has been dismantled, but the parts still exist. No use has yet been made of the engines, which are, however, now being tested with a view to being used.

Mr. Lee: Why was no attempt made even to give a trial to the ship after it arrived in England, and why was it allowed to remain until a portion of it has rotted away?

Colonel Seely: It is a long time since the Clement Bayard airship came over, and we have had to buy our experience in this matter at a much less cost than other countries. I could not go into the whole question in a reply—it is rather a long story—but I should be able to give a memorandum on the precise point.

[At last we have an official admission that the Clement-Bayard does not exist, and that the bulk of the £18,000 paid for her has been wasted. It is to be hoped that a memorandum telling the whole sad story will be officially issued.].

December 16th.

Royal Navy. Royal Flying Corps (Pay).

Mr. Burgoyne asked the First Lord of the Admiralty if it is intended to pay both branches of the Naval Flying Corps, namely, airship and aeroplane branches, the rate of pay laid down in Admiralty circular letter, No. 22, July 15, 1912.

Mr. Churchill: Officers, whether of the airship or aeroplane section of the Royal Flying Corps, receive the rates of ordinary pay laid down in the circular letter quoted, but in the case of the former section, flying pay is only payable on the days of ascent.

Indian Army (Aeroplanes).

Mr. Joynson-Hicks asked the Secretary of State for War whether there are any aeroplanes attached to the Indian Army; if so, how many; and, if not, whether it is proposed, having regard to modern requirements, to conduct the Indian manœuvres without them.

Mr. H. Baker: There are no aeroplanes attached to the Army in India at present, as the proposals of the Government of India on this subject have not yet reached the Secretary of State. Meanwhile manœuvres in India will be conducted as heretofore.

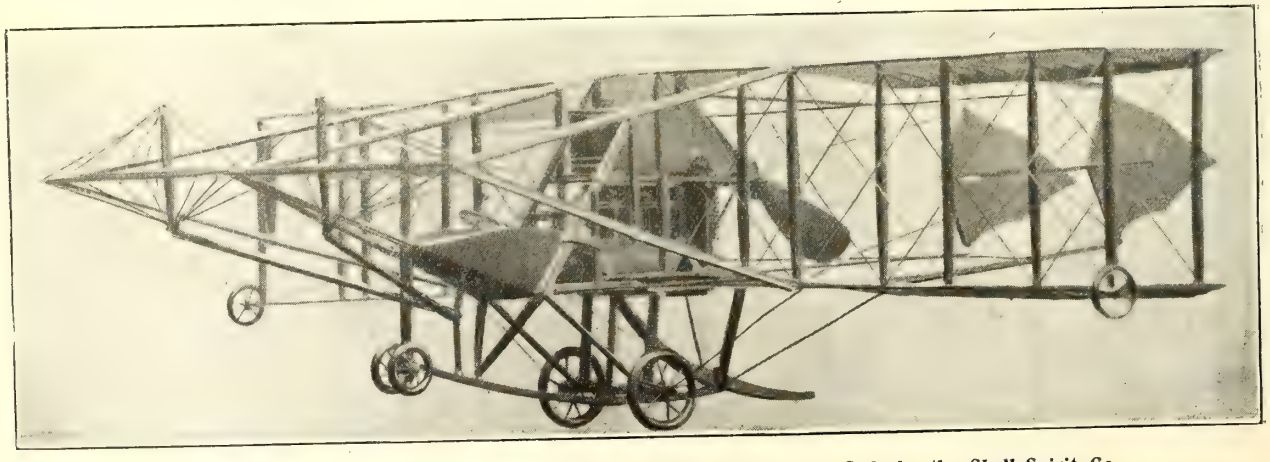
Wind Fighting Extraordinary.

On Wednesday of last week, M. Verrier, on a new British-built Maurice Farman, made one of the finest flights, from the point of view of proving the flying capabilities of pilot and machine, which have yet been made in this country. Starting from Hendon just before mid-day with Lieut. Mapplebeck (The King's Liverpool Regt.) as passenger, M. Verrier headed for Farnborough, intending to deliver the machine to the Royal Flying Corps.

So strong was the wind that the average speed of the machine was less than 10 miles per hour over the ground, and the anemometer at Brooklands showed a wind of from 35 to 45 miles per hour, which is sufficient proof that it must have been fully a 50-mile per hour wind aloft. This is proved by the fact that at several points of the journey the machine absolutely stood still for considerable periods, and Mr. Mapplebeck told the writer that in one place they hung over a cross road for eight minutes. Mr. Clement Greswell, the manager of the Aircraft Company, who was accompanying them on a car, several times stopped and watched them hovering without making any progress.

Finally, after taking one hour and 35 minutes to cover the 15 miles to Ashford, the bell crank of the magneto stuck and the engine stopped. By a very clever piece of flying M. Verrier managed to avoid a large orchard and came down in a small field full of large cabbages, where the machine stopped dead on landing, after having been blown backwards on approaching the field. As it was impossible to get out of the field again with a passenger, owing to the high trees surrounding it and the impossibility of getting a good run through the cabbages, M. Verrier went up alone as soon as the magneto was put right, and took 35 minutes to cover the remaining five miles or so to Brooklands, so that his actual flying time was 2 hours 10 minutes.

The flight deserves to rank as one of the finest ever made in this country, for it is plain that no machine ever held the air for so long a period against a wind approaching so closely to its own flying speed, and it should dispose once and for all of the old theory that a machine of large surface and light loading cannot fly in big winds.



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Monoplanes and Biplanes. By Grover Cleveland Loening, B.Sc., A.M. Price, 12s. 6d.
My Three Great Flights. By André Beaumont. Price 10s. 6d.
All About Airships. By Ralph Simmonds. Price, 6s.
Aerial Navigation of To-Day. By Charles C. Turner. Price, 5s. net.
Flying—The Why and Wherefore. By "Aero-Amateur." Price, 1s. net.
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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Wembley Accident.

On Sunday last at 11.55 a.m., Lieut. Wilfred Parke, R.N., and Mr. Arkell Hardwick were killed while flying the 70-h.p. Handley Page monoplane from Hendon, intending to reach Oxford.

Lieut. Wilfred Parke was born in Devonshire on April 1st, 1889, the son of the Reverend A. W. Parke, now Rector of Uplyme, Dorsetshire. He learned to fly at Brooklands, commencing on an Avro and taking his certificate, No. 73, granted on April 25th, 1911, on a Bristol biplane. His daring as a flier, even before he won his certificate, led people to think that he was reckless, but those who were better acquainted with him knew that all the time he was perfectly aware of what he was doing and was studying the effect of everything he did, though one might perhaps call him reckless in the sense that he recked little of the personal consequences so long as he gained some knowledge which he could impart to others. More recently he has kept a careful log of the machines he has flown, which he showed me two or three months ago, giving methodically and at the same time with characteristic frankness his opinions of machines and their behaviour. This log should be of great value to his brother officers of the Royal Flying Corps.

Seldom have I met anyone who spoke his mind so freely and openly about men and machines, and the average man would have earned for himself many enemies by saying half as much, yet such was the strength of Wilfred Parke's character, so sound was his judgment, and so great was his personal charm that he won for himself more and firmer friends than fall to the lot of most men. His immense energy and mental ability would undoubtedly have won for him a high place in his country's service had he been spared to us.

As a pilot he will be best remembered for his fine performance in putting the totally enclosed Avro biplane through the Military Aeroplane Competition in August after it had been smashed up in the first week and rebuilt, but the way he put the three military Avros through their reception tests prior to this was really as fine a performance. He had many extraordinary adventures with various other machines, including the enclosed Avro monoplane, and though the number of accidents he had gained him a name as a machine breaker, those who blamed him always forgot to say that he was flying experimental machines under circumstances of wind and weather which would have prevented other pilots from coming out at all. More recently he has done much excellent flying on the Handley Page monoplane on which he met his death, though his name has not appeared as the pilot owing to his being on the active list. So great was his enthusiasm that he used to drive up every week-end from Eastchurch, or wherever he was on duty, simply to fly for fun on machines other than those owned by the Navy, just to increase his experience. The pay of a naval lieutenant is not high, but Wilfred Parke spent practically every penny he possessed in going about to get more and more flying.

That he was appreciated by his superiors is shown by the fact that he was selected for special experimental duties with the new Short biplane, a machine of which he was very fond, and results of great value have already been achieved by these experiments, so that the last weeks of his short but eventful life have been of much service to his country. By his death many of us have lost a good friend and the country has lost an efficient officer who will not be easily replaced. To his father, mother, brother and sister one ventures to extend the sincere condolences of all Wilfred Parke's friends.

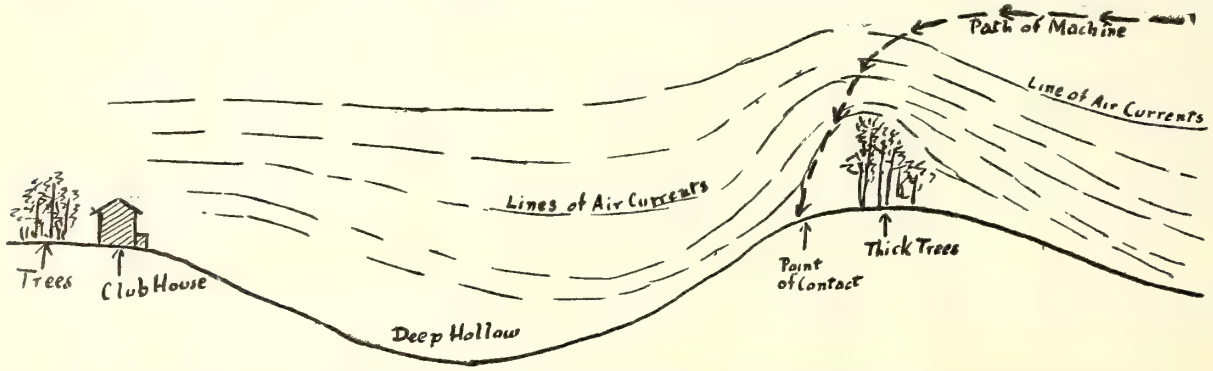


The late Lieut. Wilfred Parke, R.N.

Arkell Hardwick was Mr. Handley Page's chief business assistant. He was about 35 years of age, and had had an adventurous career in many parts of the world. Though not widely known among those connected with aviation, as he had spent much time during the past two years at Barking, we who did know him recognised in him a keen but very straight business man, whom it was always a pleasure to meet. One could never feel dull for long in his company, for his sense of humour was extraordinarily keen, and he had a knack of turning out quaint epithets and phrases which was very amusing. He had implicit faith in the machine in which he was killed and had seen it built right through; it is therefore the more satisfactory to know that his faith was not misplaced. He leaves a widow and three small children, the youngest only nine months old, for whom the deepest sympathy will be felt.

The Accident.

The reason for the accident was the simplest imaginable. Just one of those foolishly simple things which cost the best men their lives, while the ignorant and careless escape worse perils every day. The machine left Hendon for Oxford at about 11.45 or 11.50. It was noticed then that the 70-h.p. Gnome was not pulling well, though it had been overhauled



A rough diagram of the circumstances of the accident.

since the previous Sunday, and that the machine was not lifting well. However, several flights outside the aerodrome had been made with the engine going no better, as for instance the famous 14-minute flight to Brooklands, so, as familiarity breeds contempt, they decided to start. The anemometer registered at the time between 12 and 22 miles of wind, which would be equivalent to 25 to 35 at 100 feet or so, and still more aloft.

It so happened that just after the machine left, Mr. Bryan Dodds, of Howard Flanders, Ltd., was driving me across between Wembley and Kingsbury on our way to Hendon, and we saw the machine broadside on, both remarking how slowly she was moving. A moment after we caught sight of her the tail of the machine began to drop, and though she got into a climbing position, she continued to sink slowly. She was not more than 200 feet up when we first saw her and was down to under 150 feet as she approached Wembley. Just as she reached the hill on which the golf links are, she turned to the left as if to come back to the aerodrome, and, though she had turned down wind with her tail down quite safely on many occasions in the aerodrome, it struck us as a risky proceeding over enclosed country such as that round Wembley. Just as the machine came round, noticeably down by the tail, the car arrived at a corner which distracted our attention, and when we looked round a few seconds later the machine had vanished. Thinking she must have landed somewhere, we turned back to look for her, and on reaching Wembley Golf Club saw the crowd surrounding the wreck. Here we learned that two men had been killed, and when we arrived we found Parke had been killed at once, and that Hardwick was just breathing, though quite unconscious.

The machine had fallen almost straight on its nose, with a slight tilt to the right. Everything had broken up almost equally, and the pilot and passenger were fixed in the wreckage of the cockpit, which had to be sawn away to get them out. After careful examination the two bodies were taken to the police mortuary at Wembley.

The cause of the accident was quite plain. After turning and getting the wind behind him, the pilot attempted to land on the golf links, probably because his engine failed altogether. The links lie across the two sides of a valley, across which the wind was blowing. On the top of the ridge which the machine was approaching is a thick row of tall trees, with the wind blowing over them. The wind sweeping up the ridge and hitting the trees would make a fierce up-current which would curl over like a breaker on a beach and sweep down into the valley, making an almost vertical down current. The pilot, on approaching the trees, would get into the up-current and feel the front of the machine rise. He would then endeavour to put the nose down so as to land as near the trees as possible and avoid running across the links and hitting the fence or the club-house on the other side. As he cleared the tree-tops, still diving, he would get into the down current, and after that nothing could save him except a very long drop and a powerful slip stream from the propeller. As it was there was only about 50 feet to the ground, and no engine power at all to work a slip stream on to the elevator. Only one thing could happen, and that did happen.

The one lesson to be learned is that no one should fly across country except at a sufficient height with an engine that has a plentiful reserve of power, and that if the engine shows signs of failing the pilot should land at once head to wind, even at the risk of damaging the machine, rather than endeavour to stagger home with a weak engine, or risk landing down wind with the engine stopped. One may make machines as automatic in their stability as possible, but that automatic stability will not hold them up if there is no air to hold the wings. A life-boat is perfectly and automatically stable in any sea, one may turn it upside down and it will always come right side up, but that does not prevent it from being dashed to pieces when the last breaker falls away from below it and lets it smash down on the beach, if it is not under perfect control of the boatmen's oars. The cases are absolutely analogous, so let pilots learn the lesson from them.—C. G. G.

The Gilmour Memorial.

Miss Bowker writes:—"On reading the account in the current number of The Aeroplane, of the disposal of the D. Graham Gilmour Memorial Fund, it seems to me such a pity that the sum collected could not be brought up to £200. I notice that there are 116 people who have given from 10s. to £5 5s. If each one gave another 1s. there would be £5 16s. of the £7 14s. 6d. required, and perhaps some would give more. I would willingly give 5s. I know it would give you more trouble, but if you would be willing to ventilate the idea in your valuable paper I believe it could be done."

[Any further contributions received before the money is actually invested will be gladly acknowledged and it would certainly be better if an even £200 could be invested.—Ed.]

A High Flight.

On December 16 at Hendon Mr. Sidney Pickles made an excellent altitude flight on a 60-h.p. Anzani-engined Caudron biplane. Leaving ground shortly after noon, he reached a height of 7,200 feet. He landed shortly before one o'clock. The English height record is 10,500 feet, held by Mr. de Havilland since August 12, 1912. Taking into consideration the time of year, the lower power of his machine, and the unsuitable weather, Mr. Pickle's performance was excellent.

A Promising Engine.

It is now fairly well known among those closely in touch with aviation that Mr. Louis Coatelen, of the Sunbeam Motor Company, is building an aero-engine. For a considerable time Mr. Coatelen has kept in close touch with the developments of aviation, and with the special requirements of aeroplane engines. He has now turned that study to account, and before long the first aero-engine of his design will be running. It is intended to test this engine, which is to be of about 120 h.p., in a Martin-Handasyde monoplane. The present Martin-Handasydes which Mr. Petre is flying has been fitted with Antoinette engines, which are calculated to give about 90 h.p. on the brake, so that it will be interesting to see what happens when one of these machines is fitted with an engine which is apparently to weigh little if anything more than the Antoinette and to give an extra 30 h.p. One naturally feels sanguine that the Sunbeam aero-engine will be a success, for it is now some years since Mr. Coatelen came to this country and designed for the Humber Company a car which was undoubtedly the finest British-built car of its year, and, of course, since Mr. Coatelen joined the Sunbeam Company their car, which was always sound and reliable, has come right into the front rank of speed cars.

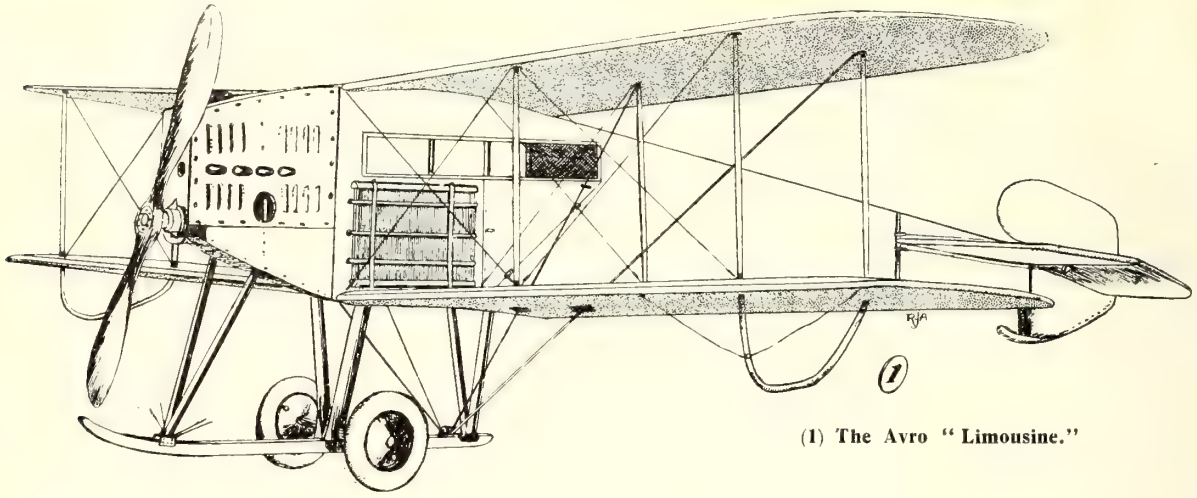
It may not be generally known that during the 24-hours' record put up by the Sunbeam this summer, in which the car ran for 12 hours, was locked up for the night and ran for a further 12 hours the next day, the engine was doing 3,000 revolutions per minute for the whole of its running time, including stops for changing tyres, so that extremely high engine speeds evidently present no difficulty to Mr. Coatelen, and undoubtedly high-speed engines geared down present very great possibilities for aeroplane work as the simplest way of getting very great power out of light and small engines.

A Useful Reference Book.

One of those useful books which everybody ought to have for reference is the "Daily News Year Book" for 1913. The section devoted to aviation has been written by Mr. T. Beaugeard, six and a half pages being given to aeronautics generally. Mr. Beaugeard deserves to be heartily congratulated on the excellence with which he has done his work. He gives an exhaustive and thoroughly up-to-date list of world's records and British records. Also a brief review of the chief contests of the year both British and Continental. The only obvious error is one for which Mr. Beaugeard is not responsible, namely, in the placing in the Aerial Derby, for the book had to go to press before the stewards of the Royal Aero Club gave their decision in favour of Mr. Sopwith.

There is an interesting section devoted to hydro-aeroplanes and another to naval and military aviation. Among the obituaries there is a mistake in including Mrs. J. V. Martin, who is, happily, still alive. Some peculiar figures are given concerning the aviation industry, but these are apparently compiled from Board of Trade information and are probably open to a variety of explanations. For instance, it is strange that the exports of aeroplanes from this country from January to August, 1911, should exceed £14,000, while for the same period in 1912 they should barely approach £12,000. Unless one is very much mistaken, the exports of the Bristol Company alone for that period must be fairly close to £50,000, so there is evidently something very wrong somewhere. Apart from this, however, the aviation section of the book is excellent and alone is worth the price charged for the whole volume.

The Enclosed Avro Biplane.



(1) The Avro "Limousine."

The firm of A. V. Roe and Co. have been pioneers in the aviation industry since the time when the first Avro biplane hopped off the track at Brooklands before Paulhan came and introduced England to the boxkite. The brothers Roe built the first machine to fly at Brooklands; a Roe triplane flew with 9 h.p., which still stands as a British record. The tractor type of biplane which has proved so efficient and safe was originated by the firm, who have supplied several to the War Office, and have recently had an order for four more.

The enclosed type, applied both to monoplane and biplane practice, has also been originated by the same firm, and has proved successful. The biplane flew at Brooklands for 7 hrs. 31½ mins. on October 21st of this year, a performance which places the machine at once in line with the best aeroplanes built in any country. During the Military Trials of this year the flight of this biplane for 37 minutes in a rainstorm, with no worse effects than a corrugated propeller, and a flight of about half-an-hour in a wind of some 30 to 40 miles an hour, stamped it as one of the most reliable and safest of the machines on the Plain.

The general arrangement of the biplane is fairly easily gathered from the sketches. The 60-horse Green is fitted inside a bonnet which is only 14 inches wide in front. The sides of the bonnet are louvred, and auxiliary exhausts are led straight out through the port side-plate. The main exhaust comes through the front plate and turns up and over along the roof, so that the slipstream helps the gas on its way, and doubtless assists in silencing the exhaust to quite an appreciable degree.

The engine bearers are steel girders of ⅂ section, the webs being drilled out to save weight. Behind the engine they bend outward to the full width of the body, and are continued back as far as the back row of struts. This plan gives enormous rigidity to the main unit of the biplane, and it would seem that drilled out steel bearers might come out lighter than wooden ones.

The pilot's seat is almost on the floor, and the whole arrangement reminds one of that of a racing sculler on the Thames. Two bearers run fore and aft and take the controls while the seat is also placed on them at a slightly higher level. The rudder bar is below them, pivoted to a steel plate, so that the pilot still has his head above his feet. Indeed, this is quite a comfortable position, and one in which the whole power of the body may be used on the controls if necessary.

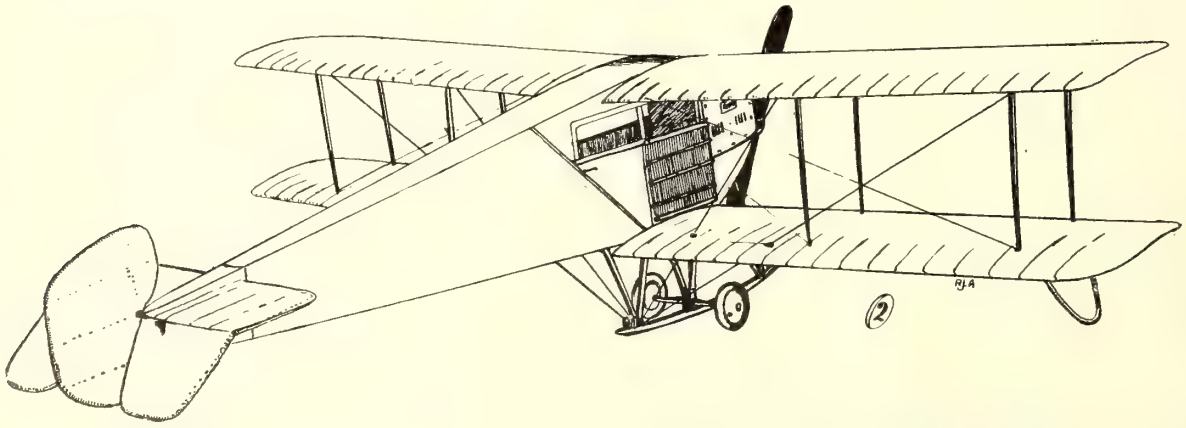
The pilot enters through a little triangular door, closing it carefully after him to keep out the draught. If he did not, the draught undoubtedly would. In order to keep the doorway free of wires, a wooden diagonal strut is built into the body at this point, carrying on the rigidity where the engine bearers left off. The rest of the fuselage is a box girder, wire-braced, and stiffened up by the use of three-ply wood.

The tail is rectangular in plan, with the forward corners rounded off, and two large elevators of 14 square feet are hinged on its rear edge.

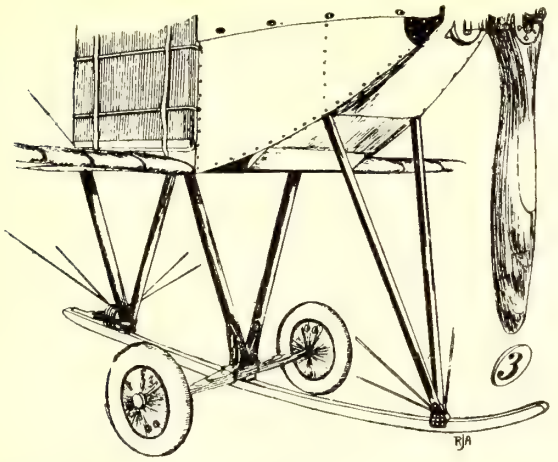
The rudder is balanced, and acts also as a tail-skid. A steel compression spring helps to ease out the bumps, and the rudder has a metal shoe where it touches the ground.

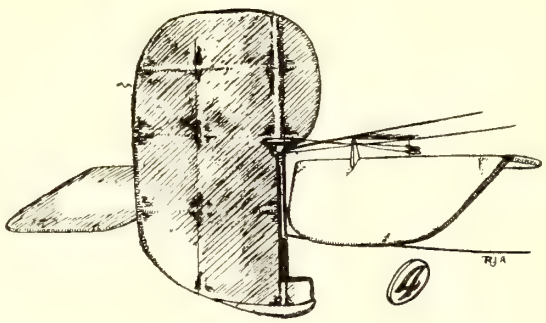
The undercarriage is of the single-skid and cross-axle type. The front pair of struts are of wood; the rest are steel tube joined at the bottom by acetylene welding. The cross-axle is laminated and carries a pair of small diameter disc wheels. The axle takes the weight at the centre of the hubs, not on the inner bearing, so that the danger of an axle snapping at the shoulder and spoiling a neat landing is averted. Two malacca cane wing-tip skids are fitted, long enough to stop the wing from going over too far for safety.

The planes are of a high aspect ratio, a span of 35 ft. 3 ins.



(2) Starboard Quarter View of the Avro.





(3) The Avro Chassis.
(4) The combined Rudder and Tail Skid.

and a chord of 4 ft. 9 ins. giving 1 in 7.4. The supporting area is 310 square feet, tail plane with elevators 34 square feet, and rudder area 10 square feet. The over-all length is 28 ft. 6 ins.

During the Military Competition the speed was given as 48 to 62 miles per hour, and the gliding angle 1 in 6.5.

The "Limousine," as it has been called, is probably the most comfortable of modern aeroplanes to pilot. The "windows" are not covered at all, but the only wind felt is the side draught when banking at a turn.

One wonders that a machine with so much side area should make a good wind flier, but, as has already been noted, it stood between 30 and 40 for 30 minutes. It seems possible that with a side wind the tail would be blown round, and the machine come head to wind. But the side area of the body is so designed that the resultant of the forces set up by a side wind acts at the centre of gravity, so that in a side wind the machine would make lee-way bodily, but would not want to turn either in to, or out of, the wind.

As to the construction, it is of modern Avro excellence. The warping cable is a huge affair, and acts directly in a straight line from the drum to the wing tip, being let through slots in the lower plane. The strut sockets are quickly detachable and as quickly replaced, yet there is absolutely no chance of them coming out in the air. In the assembly test the machine was assembled in 14½ minutes and dismantled in about the same time.

The 60-h.p. Green drives an Avro propeller of 10 ft. diameter direct. Two spiral tube radiators of about 600 feet keep the engine quite cool. The fabric is doped with Cellon, so the machine is All-British.

R. J. ASHFIELD

The Institution of Automobile Engineers and Aeronautical Engines.

On the 11th inst. Mr. A. Graham Clark, member of the Institution of Automobile Engineers, read a paper before the members of that Institution on the subject of "Aeronautical Engines." The Institute of Mechanical Engineers kindly lent their big hall for the occasion.

If one were only to take the substance of the paper as a measure of Mr. Clark's knowledge, one might imagine that one could fill volumes with what Mr. Clark does not know about aeronautical engines, for in the paper itself he dealt with numerous foreign and British engines which have never yet succeeded in making a machine fly for more than a few minutes, while making no more than casual mention of such a highly successful British engine as the Green, and apparently ignoring the existence of the N.E.C. altogether, despite the fact that the N.E.C.'s at Eastchurch have probably spent as many hours in the air as any engines there. When a lecturer to a scientific institution of this kind makes such strange omissions, and then proceeds to quote the remark of the judges in the Military Aeroplane Competition that "British engines had not yet proved themselves capable of equalling the performances of the best foreign high-powered engines," one really begins to despair of one's country. Mr. Clark seemed particularly pleased with the high-brake thermal efficiency attained by the six-cylinder 70-h.p. Chenu engine on account of this test being made in the laboratory of the Automobile Club of France, which, of course, may be of considerable scientific interest, though the more practical aviator might find his enthusiasm somewhat damped by the persistent automatic disintegration of such Chenu engines as have hitherto visited this country, and one is little disposed seriously to consider opinions which have not practical experience behind them.

Mr. Clark took it upon himself to criticise various points in the A.B.C. engine without, apparently, having familiarised himself with the latest developments of those excellent motors, and without taking into consideration their performances. He also criticised the laminated springs used on the Austro-Daimler, which have in practice proved exceedingly effective. He devoted considerable attention to such engines as the Alvaston, the Adams Farwell, the Albatros, and the old type Adams engine (which he omitted to mention is being redesigned by the Dorman Engine Co.), the Fox, the Gyro, and the Sturtevant, none of which seem on their performances to call for particular mention, and are not particularly notable for originality of design.

Mr. Clark was also responsible for some rather strange assertions on his own account, for he mentioned that "many designers are raising the speed of their machines for the purpose of obtaining greater stability," and gave this as the reason for the use of higher-powered engines. It may interest Mr. Clark to know that the chief reason for producing faster machines is in order that one may arrive at one's destination more quickly, and that the endeavour to get higher and higher power for less weight is an attempt to obtain a reserve of power in case an engine is not in perfect tune. It is also somewhat hard to understand exactly what he means when, in referring to the desirability for cleanliness in engines, with which one is absolutely in agreement, he states that "a dirty appearance is generally caused either by the oil splashed about during hand oiling, or by the exhaust." As a matter of fact, hand oiling of an aeroplane engine when running is a somewhat uncommon proceeding, for the writer is unable to recollect any engine on which it is habitually done.

In a general way Mr. Clark's views on the reduction of weight per horse-power in engines are quite sound, the principal ways advocated by him being as follows:—

(a) By the employment of materials of low specific gravity or great strength.
(b) By limiting the volume of the material.
(c) By reducing the number of parts subject to stress.
(d) By the more economical use of the material.
(e) By so disposing the material that it is better able to resist the loads which it is called upon to withstand.
(f) By the use of the simplest construction possible.
(g) By the adoption of air-cooling for the cylinders.
(h) By running the engine at higher speeds and gearing the propeller down.

One is inclined to disagree with him on the subject of using

materials of low specific gravity, because aluminium or aluminium alloys are practically the only valuable materials of less specific gravity than steel, and the unreliability of aluminium is proverbial. Also it is doubtful whether air-cooling of the cylinders is actually preferable to water-cooling in really big engines, for if an engine such as the Renault is left open to be cooled by the slip-stream of the propeller the head resistance is almost certainly greater than that of a water-cooled engine in a proper streamline case with the radiators well arranged, and if fan cooling is used the power required to drive the fan is probably greater than the power required to lift the extra weight of a water-cooled engine. It is quite time that some of our well-endowed Government establishments carried out exhaustive experiments on these points.

The writer is cordially in agreement with Mr. Clark on the subject of running engines at higher speeds and gearing the propeller down. The wonderful performances of high-speed car engines have proved that a properly designed engine will run at enormous speeds for long periods, and the loss of power through well-designed gearing is almost certainly not so great as the loss of power through turning a propeller very fast, owing to the fact that the head resistance of a propeller goes up approximately with the cube of the velocity.

Mr. Clark also referred to the loss of efficiency with direct-driven propellers, owing to the variation in torque, and he laid stress on the necessity for a sufficiently heavy flywheel to steady the engine. On this point the writer ventures to suggest that a considerable saving in weight, and gain in steadiness, might be achieved in aero-engines by combining the flywheel and magneto arrangements as is done in the Ford car. At the present moment one has to fit a heavy flywheel to keep the engine steady and carry the weight of the magneto in addition, whereas it should be quite possible to combine the two and save the weight of one of them.

The tables compiled by Mr. Clark, and published with his paper, indicate a considerable amount of study on his part, and it is, therefore, to be regretted that, in the description of the Green engine, he should have made such obvious errors as the statement that the cylinders are of cast iron, when they have always been steel, and that the jackets are of spun copper, when they are actually pressed in a die from sheet copper. Otherwise the tables indicate careful research—in the makers' catalogues. There is no doubt that with a little more practical experience of the behaviour of various engines at aviation grounds Mr. Clark could compile another and even more interesting paper.

Following on the reading of the paper, Mr. S. F. Cody opened the discussion by stating that air-cooled engines did not do all the best performances as the lecturer appeared to think, and that, as regards propeller flutter, this was worst in a Gnome engine which was held at one end of the shaft, for then one got fore and aft vibration of the whole engine. All this could be avoided by running the propeller on a solid shaft and keeping it well away from the machine itself, for it was a mistake to have the propeller shaving the struts and edge of the planes. He pointed out that the author had omitted, in talking of the joining of water-jackets, to mention the rubber ring system used in the jacket of the Green engine, which had won all the Michelin prizes except one. In that engine we had as good an engine here in England as any elsewhere, but it was not given a chance. If he were flying across the Channel or making any other dangerous trip he would use a British Green in preference to anything else. In the Military Competition he wanted higher power than was available in English engines, so he got an Austro-Daimler, and he liked the laminated valve springs very well. The dual magneto system was of pronounced value, and when the sparks were properly synchronised it certainly gave more power, because the engine ran slower on either magneto than when both were switched on at once.

Mr. Pomeroy said that auxiliary exhaust ports in the cylinder walls wasted oil, upset the lubrication, and did not relieve the exhaust. It was not necessarily the lightest engine which did the best work, but he understood that a heavy engine necessitated a steep glide if it stopped. (N.B.—This shows how much some really competent engine designers know about aeroplanes.) He said that the propeller made quite as much noise as the engine, a statement which is also open to argument. Referring to hydro-aeroplanes, he said that frequent applications of paint would protect aluminium from sea-water.

Several other members of the Institution took part in the discussion, though it must be confessed that none of them contributed any statement suggesting any new ideas to those who have a working acquaintance with aero engines, except Mr. Bullock, who pointed out that, judging from the number of different types of engines which have been made up to the present, the tendency seemed to be towards vertical-cylindered, water-cooled engines, and that he believed in this type, owing to the facility for stream-lining their covering.

It is to be hoped that the members of the Institution of Automobile Engineers will devote considerably more time and attention to aeronautical engines in the future, for there is undoubtedly a huge field to be developed, and any firm which produces an effective aviation engine will before long find a very paying market for it.—C. G. G.

Aerodrome Jealousy.

There undoubtedly exists at the present moment a regrettable feeling of jealousy between the denizens of the different aerodromes in this country, and it appears to be particularly bitter between Brooklands and Hendon. One can understand, of course, a certain feeling among Brookland pilots that aviators at Hendon get rather more of the limelight than they do, owing to the fact that so many thousands of people constantly went to see the flying at Hendon, but there is no excuse for the ridiculous charges which have been made only too frequently lately that there is no use in a Brooklands pilot flying in competitions at Hendon because he is sure to be handicapped out of any race for which he enters.

It may interest the gentlemen who are responsible for this absurd story to know that neither the proprietors of the Hendon Aerodrome nor those interested in the aerodrome had anything whatever to do with the handicapping of the competitions there. Most of the season the handicapping was done by an entirely independent committee composed of Mr. J. H. Ledeboer, the editor of "Aeronautics," Mr. T. O'B. Hubbard, the Secretary of the Aeronautical Society, and Mr. A. G. Reynolds, who is one of the official timekeepers of the Royal Aero Club. Surely these names should be above reproach. Since Mr. Hubbard joined the Central Flying School at Upavon, the handicapping was well done by Messrs. Reynolds and Ledeboer.

The handicappers have always worked on strictly scientific principles, and on many occasions extremely close finishes have resulted, even to the extent of producing a dead-heat on one occasion, and several wins by a second or two. On the occasions when a competitor has won by a great distance it has either been through clever flying or because science has been at fault.

Of course, when a machine whose speed had never been tested against the watch arrived with a big reputation as a fast machine, it is natural that the handicappers should give it the benefit of its reputation. Apart from that it may have been noticed that Mr. Lewis Turner continually won by long distances. These wins have been due to the fact that Mr. Turner's flying has improved so much with continual practice round the pylons that week after week he took seconds off his speed for each lap, and naturally he was handicapped on his previous timed speed. And it must be remembered that if Mr. Turner had not been such a good sportsman as he is he could have quite easily been content to win by quite short distances and so have kept himself on a very much longer handicap mark than was latterly given to him. The writer sincerely hopes that this little explanation will remove any feeling which may exist that the permanent pilots at Hendon have secured their wins by any other means than excellent flying.

Incidentally, the writer has heard outside pilots say in a sneering way, "Why should we go and fly at Hendon to put money into the proprietors' pockets?" May he be permitted to ask those pilots where else in this country so much prize money has been put up and won during the past year, and where they could have had as good an opportunity of displaying their ability and the excellence of their machines before an audience at once so large, so influential, and so appreciative? Also it is not without interest to note that by far the greater share of the prize money was won by pilots unconnected with the Grahame-White Company.

A Slight Exaggeration.

The Paris correspondent of the "Daily Mail" reported on Wednesday of last week that the "Astra Aeronautical Co." has received an order from the British Admiralty for "a number of naval water-planes." As a matter of fact, one Astra 100-h.p. hydro-aeroplane has been ordered for experimental purposes, so British manufacturers need not be unhappy at present.

The Week's Work.

MONDAY, December 9th.

R.F.C. (Central Flying School).—Strong southerly wind, dull and misty. On Maurice Farman 411, Lieut. Longmore, R.N., 10 mins. On Maurice Farman 418 Major Ashmore 11 mins. Capt. Salmond arrived from Farnborough on new B.E.417. (Time not known).

R.F.C. (Farnborough).—No. 2 Squadron.—South-easterly wind, very cloudy. On B.E. type 201, Lieut. Longroft four flights of 6, 10, 20 and 7 mins. at 1,500 feet.

Royal Aircraft Factory (Farnborough).—Mr. de Havilland several fine flights on B.E.2.

Hendon.—At Grahame-White School. Mr. Louis Noel out on 80-h.p. Farman at 4.5 with passenger.

At Deperdussin School, during a fine spell, Capt. Macdonell put in good practice on No. 3 machine, making good straights and landings. Mr. Scott also straights on No. 3 machine. Mr. Brock and Instructor Brereton out on No. 3 and No. 4 machines.

Brooklands.—At Vickers' School. Mr. Barnwell straights on Farman, with Capt. Salmon in back seat. In afternoon, wind stopped box-kiting, and Mr. Barnwell made flight in No. 5 monoplane, finding himself very near the roof at only 1,200 feet.

At Bristol School, Mr. Bendall trial in afternoon.

At Ducrocq School. Mr. J. Alcock circuits and across country, also testing Mr. Parson's Sommer biplane.

Salisbury Plain (Bristol School).—Mr. Busteed testing in strong wind.

TUESDAY, December 10th.

R.F.C. (Central Flying School).—Moderate southerly wind, dull. Heavy rain came on at 10 a.m. which stopped flying. On Maurice Farman 411, Lieut. Longmore, R.N., with Petty Officer Andrews 6 mins. On Short biplane 401, Major Gerrard, R.M.L.I., with Capt. Lithgow, R.A.M.C., 9 mins.; Ldg. Seaman Prickett 15 mins.

R.F.C. (Farnborough).—North-westerly wind, slight rain, and very cloudy. On B.E. type 201 Major Burke 8 mins. at 1,000 feet. Lieut. Longcroft with Capt. Becke as passenger, 14 mins. at 1,800 feet, with Lieut. Chinnery 23 mins. at 1,500 feet. Lieut. Longcroft and Capt. Becke as passenger flew over to airship "Beta," which had descended on the Queen's Parade owing to engine trouble, to assist, but was not required, so returned after a flight of 10 mins. at 1,700 feet. Lieut. Playfair on Bréguet 211, 100-h.p. Gnome, started for flight but had to return owing to engine trouble.

R.A.F. (Farnborough).—Mr. de Havilland out on B.E.2 one flight, heavy rain stopping further flying. Mr. Gordon Bell one hour's flight on new Short tractor biplane, pilot and machine flying excellently.

Hendon.—At W. H. Ewen School, pupils out at 11.30 a.m. under M. Baumann, who had Messrs. M. Zubiaga and R. S. McGregor doing straights and making excellent progress on monoplane No. 1.

At Bleriot School, Lieut. Loftus Bryan doing straights on L.B.1.

At Blackburn School, in morning Mr. H. Blackburn took brevet machine for test, afterwards giving Mr. Buss tuition 30 minutes. In afternoon Messrs. Glew and Lawrence Spink straights 20 mins. each.

Brooklands.—At Vickers School, Major Cameron and Capt. Salmon with Mr. Barnwell and, later, Mr. Knight up behind, put in large number of straights each making very good flights and landings. Later on rain stopped flying.

At Bristol School, Mr. Bendall first up followed by Mr. Merriam, Capt. Powell and Lieut. Thompson for tuition. Lieut. Todd and Messrs. Ewing and Featherstone all for circuits.

At Ducrocq School, Mr. J. Alcock for usual cross-country flight over Weybridge and Chertsey landing with a long glide from 1,000 feet, also flying circuits with passenger.

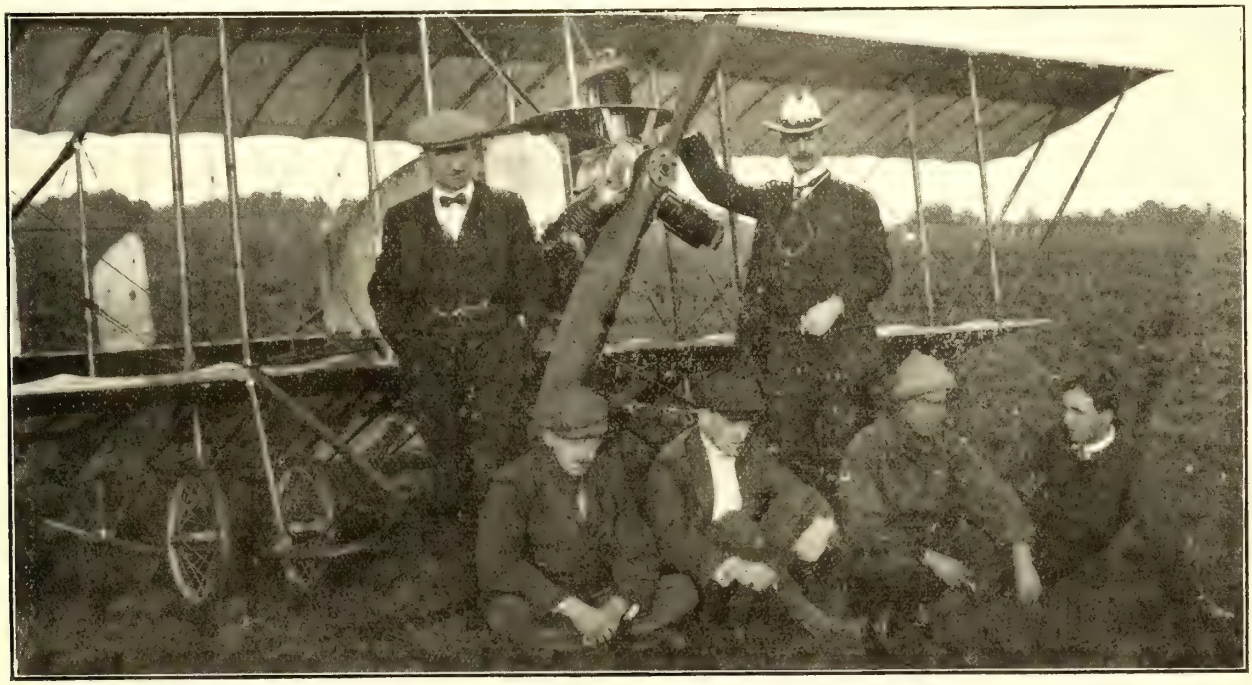
Liverpool (Waterloo).—Most of week occupied overhauling 50-h.p. Gnome, but owing to weather no opportunity occurred for testing. To-day however, engine was run, but although giving more power than before did not seem to be quite O.K. In afternoon Mr. Melly took out new machine to try some alterations to elevator, which were quite satisfactory. Weather still very stormy, so after two figures of eight machine was brought in.

Salisbury Plain.—At Bristol School, Mr. Harrison taking Lieut. Vernon and Lieut. Marix for tuition. Mr. England with Mr. Tower, Lieuts. Bigsworth, Rees, and Littleton. Lieut. Negrescu on tandem monoplane. Mr. Busteed testing. Mr. England tuition to Lieuts. Vernon, Bigsworth and Marix.

Windermere.—"Sea Bird" out with Mr. Stanley Adams, flying satisfactorily. Later with Lieut. Trotter at wheel broke propeller. Having no suitable spare, "Sea Bird" laid up for rest of week.

WEDNESDAY, December 11th.

R.F.C. (Central Flying School).—Very strong southerly wind and heavy rain prevented flying.



(Photograph by R Birkett, Shepherd's Bush.

A part of the W. H. Ewen School. Standing, on left, Mr. A. C. Hunter; on right, Dr. Edmund Stoddart. Seated, left to right, Capt. Chamier, Mr. A. M. Ramsay, Lieut. Conran, and Mr. H. James.

THURSDAY, December 12th.

R.F.C. (Central Flying School).—Fine, clear and calm. Slight south-west wind later. Capt. Webb Bowen left school for Farnborough on B.E.206, after doing two circuits of the aerodrome. On Maurice Farman 403, Petty Officer Andrews 30 mins. very good flying, making three splendid landings and rising again; Lieut. Atkinson 35 mins. On Maurice Farman 411, Lieut. Longmore, R.N., with Ldg. Seaman Bateman flew to Gallops, Lieut. Longmore observing Ldg. Seaman Prickett, and then took Bateman for a 30 mins. flight, then with Assist.-Paymaster Lidderdale, R.N., 20 mins. On Maurice Farman 415, Lieut. Pepper 60 mins., very fine flight over Salisbury district; Lieut. Allen 12 mins.; Engineer-Lieut. Randall, R.N., 15 mins. On Maurice Farman 418, Major Ashmore 2 hours cross-country, going to Stockbridge and returning. On Short biplane 401, Major Gerrard, R.M.L.I., with Ldg. Seaman Prickett over to Gallops, then Ldg. Seaman Prickett went for his brevet, and took it in very fine style, doing the first half in 12 mins. and the second half in 17 mins., reaching an altitude of 520 feet. This N.C.O. has done exceedingly well, having had only 2 hours 55 mins. tuition under able teaching of Major Gerrard. Major Gerrard with Ldg. Seaman Prickett then back to hangars; then with Capt. Lithgow, R.A.M.C., 15 mins.

R.F.C. (Farnborough).—South-westerly wind very bumpy. On Bréguet 210 Major Raleigh 30 mins. at 6,500 feet. Lieut. Playfair with Lieut. F. B. Joubert de la Ferté as passenger for 20 mins. at 1,600 feet. On Bréguet 211 Major Raleigh with Lieut. Chinnery as passenger for 15 mins. at 1,500 feet. Mr. Cody out on Cody biplane with Lieut. Harrison for instruction, making several long flights at a good height, handling machine with usual skill. Capt. Webb-Bowen returned from Upavon on B.E. type 206, making very good time. Capt. Longcroft with Capt. Beor as passenger, on B.E. type 201, set out for Portsmouth, but had to make forced descent at Bordon with a broken petrol pipe; after repairs they returned to Farnborough, height about 2,000 feet.

R.F.C. (Farnborough).—Mr. de Havilland out morning and afternoon making several good flights. Mr. Gordon Bell on Short tractor biplane one hour's flight in morning; out again in afternoon doing speed tests, flying well in very gusty wind.

Hendon.—At Grahame-White School, owing to wet and wind practically whole week, very little work done. To-day Capt. Kunhardt out making straights on Grahame-White biplane No. 5. Lieut. R. G. D. Small with Instructor Manton, and same instructor with Capt. Kunhardt as passenger.

Number of spectators present to witness splendid afternoon's flying. At 3 o'clock Mr. Louis Noel up with lady passenger on 80-h.p. Farman, afterwards giving several exhibition flights, including circuits and cross country. Mr. Manton flying No. 5 Grahame-White biplane, Mr. Marcel Desoutter flying Blériot monoplane to 3,000 feet, Mr. Sydney Pickles on Caudron, and Lieut. Porte on 100-h.p. Deperdussin monoplane. Mr. Lewis Turner, now chief pilot of Ewen School, also flying Caudron.

At Deperdussin School, weather favourable, pupils putting in good practice. Lieut. Hooper, R.N., went for brevet, which he secured in excellent style, his figures of 8 and landings being very good. Mr. Scott out on brevet No. 3 making good straights and circuits, landing neatly. Mr. Valazzi was also putting in good work in No. 2 and No. 3 machines. Mr. Whitehouse put in good straights on brevet No. 4; Mr. Spratt and Mr. Brock and School-Instructor Brereton out on No. 3 and No. 4 machines doing circuits. In afternoon Lieut. Porte, R.N., out for some time on 100-h.p. Anzani two-seater, and reached good height, engine pulling well, and after splendid flight finished up with magnificent glide.

At W. H. Ewen School, strenuous work began 8.10 a.m. Mr. Lewis W. F. Turner had out 35-h.p. Caudron, and after good exhibition of 20 minutes in which he reached 1,000 feet, finishing with a beautiful spiral glide, he handed over to Mr. L. Russell, who made good straights and half-circuits. Lieut. M. W. Noel also several straights. M. Baumann busy with pupils on 28-h.p. Caudron. Lieut. M. W. Noel and Mr. H. Gist excellent straights. To finish good morning's work Mr. L. W. F. Turner again made exhibition on 35 Caudron in rapidly rising wind.

At Bleriot School, Lieut. Loftus Bryan and Mr. R. Desoutter straights on L.B.1, and Messrs. Sacchi and Gandillon straights on No. 3. Lieut. Eric Conran practising on Anzani Blériot.

At Blackburn School, Mr. Buss straights 20 minutes, afterwards Messrs. Glew and Spink 20 minutes each and Mr. Buss another 10 minutes. In evening Messrs. Glew and Laurence Spink straights 10 minutes each.

Brooklands.—At Vickers School, Mr. Knight for flight on Farman, then sat behind Capt. Salmon, who is getting on very well indeed, for a number of straights. Later on Mr. Knight took up Mr. Lane, followed by Capt. Salmon. In the afternoon Mr. Lane promoted to front seat, and did very well.

At Bristol School, Mr. Bendall testing; Mr. Featherstone for circuits; Mr. Merriam with Capt. Rickards and Mr. Lane. Mr. Merriam testing in afternoon. Lieut. Thompson for tuition.

At Ducrocq School, Mr. J. Alcock making fine cross-country flight round Weybridge, Walton and Chertsey, finishing with a long glide from 1,300 feet; Mr. McAndrew circuits and right-hand turns. Mr. J. Alcock circuits, also testing Mr. Parsons' biplane fitted with automatic stability device. In afternoon Mr. J. Alcock circuits and passenger flights in gusty wind.

Brighton-Shoreham.—At Avro School, Mr. Simms had out Green Avro. This machine has been rebuilt and greatly improved. Pupils rolling. Mr. Powell had out Burga monoplane.

Salisbury Plain.—At Bristol School Mr. England trial, afterwards two flights each to Lieuts. Bigsworth, Vernon, Marix and Littleton. M. Jullerot two trips each to Major Merrick, Lieuts. Bowhill, Bigsworth, Marix, and Littleton. All these for two further trips with Mr. Pizey; Mr. Busteed testing 80-h.p. belonging to Prince Cantacuzene. Lieut. Negrescu then passed tests for certificate, making exceedingly fine flights. Lieuts. Chiscaneanu and Parvelescu both alone in tandems.

FRIDAY, December 13th.

R.F.C. (Central Flying School).—Very strong westerly wind, very dull and heavy rains. No flying.

Hendon.—At Bleriot School, Mr. Bertram W. Williams joined school.

SATURDAY, December 14th.

R.F.C. (Central Flying School).—Very strong wind, dull, heavy rain.

SUNDAY, December 15th.

R.F.C. (Central Flying School).—Moderate west wind. Fine and clear.

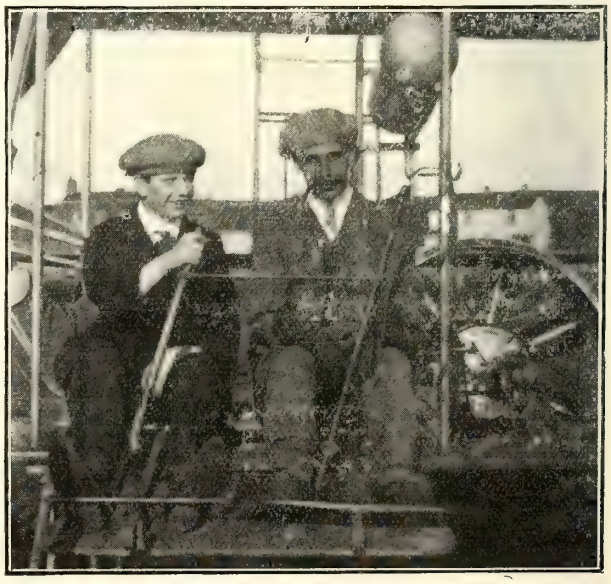
Hendon.—At Blackburn School, test flight by Mr. Blackburn of 15 mins., followed by Mr. Buss 20 mins. straights.

Lieut. Wilfred Parke, R.N., and Mr. Hardwick started for Oxford on Handley Page monoplane at 11.45 a.m. Shortly afterwards word was received of their fatal accident at Wembley, which put a stop to flying in afternoon, though several pilots wished to make flights, if only short ones, in their honour.

Brooklands.—At Flanders School, new monoplane down from works on Thursday 12th inst., and out for first flights to-day. Mr. Raynham alone for about ¼ hour in morning.

At Bristol School, Mr. Merriam took Mr. Featherstone as passenger for a short trip and found it very bumpy.

Few spectators present warmly applauded circuits made by Mr. Petre on Martin-Handasyde at 500 feet in wind up to 35 miles an hour



A REMINISCENCE OF SUMMER.—Mr. D. G. Young (now of the R.F.C.) and Mr. Howard T. Wright, the well-known constructor, on the Sopwith School biplane on which they took their certificates.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.

For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.

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THE AEROPLANE

1D WEEKLY

Edited by C. G. GREY. ("Aero Amateur")

VOL. III. [Registered at the G.P.O. as a Newspaper.] THURSDAY, DECEMBER 26, 1912. No. 26.

MODERN MILITARY METHODS.



Handley Page Monoplanes.

50 H.P. GNOME - £850

70 H.P. GNOME £1,050

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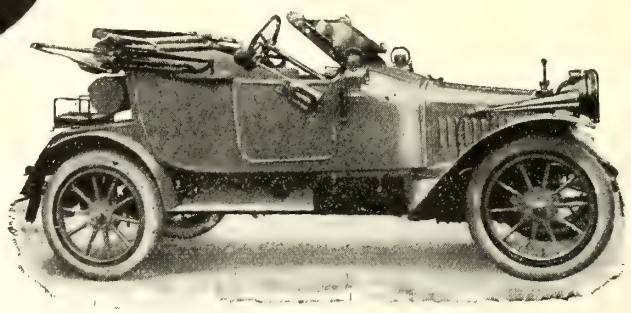
"Saturday was no exception to the rule. The day was a dismal one. Low-lying clouds, a thick mist, and withal a sharp gusty wind in the upper reaches, combined to make the conditions as unfavourable as possible. It was with some surprise, therefore, that we learned, shortly after noon, that the Handley Page monoplane, carrying a passenger in addition to the pilot, had started from Brooklands, where it had been flown the previous week, on its way to Hendon. The journey proved an adventurous one; in spite of the 20-mile wind, the ground was lost from sight in the mist immediately after the start. The monoplane rose to 400 feet, and was thereafter steered by compass. The only landmark seen during the flight was the spire of Harrow Church looming out of the fog. Even from the Welsh Harp, less than a mile away, the aerodrome was invisible, and it was only after circling for some time that the pilot managed to obtain a glimpse of the aerodrome and to effect a landing.

"REMARKABLE RECORD.

"The record of the Handley Page monoplane during the last two months has been a remarkable one. It is designed on a principle that endows it with a large measure of automatic stability; accordingly, the machine has been flown in all weathers, irrespective of the strength of the wind, for the purpose of demonstrating its undoubted qualities in this respect."

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Editorial and Advertising Office—166, Piccadilly. Telephone—5407 Mayfair. Telegrams—Aileron, London.

Mere Frivolity.

The best gift of Providence is a sense of humour, and failing a real sense of humour the ability to be merely frivolous at seasons is no bad substitute. True, humour or frivolity may be out of place at times. Also there are some unfortunates who mistake a warped form of jocosity for humour and allow it to operate at the wrong time with disastrous results.

Quite recently someone asked one of our leading aeronautic scientists whether he could explain the point of certain supposedly humorous pictures appearing in a journal of unimpeachable respectability and of scientific aspirations wherein frivolity finds no place. Said the scientist, with his gravest air: "Dirt has been defined as matter in the wrong place." Now, without in the least agreeing that a gentle levity *per se* is matter in the wrong place when it appears in a paper devoted to aviation, there are certainly times and seasons when it is out of place—and this is not one of them.

To begin with, this is the Christmas holiday season when most people are suffering from heavy dieting and therefore prefer light reading. In the second place, Christmas itself has been arranged this year so as to give the maximum of inconvenience with the minimum of holiday for the unfortunates who produce newspapers. Therefore The Aeroplane has to be "put to bed"—which is the technical phrase for the operation of getting ready for the printing press—three days earlier than usual, and no one can reasonably expect deep thinking and erudite research in the period between Tuesday and Saturday of one week, especially when the first day or two is needed for recovery from the stress and brain fag of producing the previous issue. (Applause from the remainder of the staff, who are earnestly thinking of Christmas holidays.)

Furthermore, a certain sense of humour—not to say a levity of spirit—is essential to the mental outfit of those who drag an existence out of aviation. In the present flourishing state of the industry, harassed as it is by capitalists hurrying to pile their wealth into constructional businesses, worried by the difficulty of obtaining engines from overworked British engineers, and annoyed by the continual demands of the Admiralty and War Office for more and more machines for immediate delivery, a manufacturer's life is hardly worth living. The unfortunate pilots, worked to the bone testing high-speed aeroplanes of vast power, day after day, before submitting them to the sympathetic inspection of the officials of the Royal Aircraft Factory, would be on the verge of nervous collapse but for a little brightness in their dull humdrum existence. And the designers, rushing up and down between their hard-driven drawing offices, and the Government experimental departments at Farnborough and Teddington, whither they are summoned at a moment's notice a dozen times a week to witness and profit by the magnificent results constantly achieved at so trivial an expenditure of the tax-payers' money, would be in peril of an epidemic of cerebro-spinal meningitis through over-taxation of their brain-power but for the few minutes of relaxation they force themselves to take when they tear themselves away from work to gambol (note to printer—not "gamble") mentally with the lighter wits of aviation in the select but luxurious lounges of the Royal Aero Club. Were it not for these lighter moments, it would be better for any of us to seek out an eligible site for a street crossing and sweep it with as little expenditure of trouble as possible and as keen an eye to the main chance as is compatible with a quiet and ordered existence.

Even those who are naturally pessimistic can be cheered up at times. Only the other day one of the overworked victims of aviation was lamenting that he had ever been born, when an irresponsible Irishman to whom he made his lament remarked: "An' if ye hadn't where would ye be? Maybe ye'd be a little baby angel with a little bit of down on ye're back and nothin' on ye're front, sittin' on a damp cloud learnin' to play a harp' instead of rowlin' around in motor-cars and hoppin' off the earth in aeroplanes—and you with no taste for music at all." Whereon the pessimist thought perhaps his experiences here below might be useful if not exactly entertaining.

Certainly our pilots are not without a sense of humour at strange times. It is on record, thanks to his passenger, now an officer of the Special Reserve of the Royal Flying Corps, that some months ago, one Raynham, a pilot not without repute as a record-breaker and prize winner, was flying across from Hendon to Brooklands, when, after going badly for a while and letting them down very low, the engine stopped abruptly while they were over the middle of a large orchard. There seemed nothing likely to prevent a descent in the trees, but, quite unconcerned, Raynham turned to his passenger and asked: "Do you like apples?" The passenger does not record his reply, for at that moment the engine picked up and enabled them to reach an open field a few hundred yards farther on.

Even pupils in their most elementary stages occasionally find the right word, as for instance a monoplane pupil at an aerodrome near London, who endeavouring to do a rapid turn, banked the machine

too far and fell out, dropping about twenty feet. The machine righted itself, flew a few yards, and came down with much breaking of wood. The school instructor and crew rushed out to pick up the remains of the pupil, and when about a hundred yards from him they were surprised to see him pick himself up and walk towards them. He came straight to the instructor, and said most apologetically: "I'm afraid I've broken your machine." Could any remark be at once more correct and more unexpected?

Altogether, despite their troubles, their lack of money, and their excess of work, the rank and file of those who have to do with aviation are wonderfully cheerful, and appreciate the benefits of occasional frivolity, so they will require no apology for what may appear unseemly levity in this issue of The Aeroplane, and to those who object to humour in so serious a journal as this, the writer promises it will be a long time before he permits so grievous a lack of solemnity to occur again. Meantime, the Compliments of the Season to everyone.

On Centres of Gravity and Pressures.

One of the great objections which the average aviator or designer has to the small span hydro-aeroplane, whether of the type using floats or of the genuine aero-hydroplane flying-boat type, is that the centre of gravity is so low down that the machine sets up a pendulum motion in the air. This is said to be particularly noticeable in the Donnet-Lévèque, which behaves most peculiarly on corners.

There are, however, certain constructional advantages, especially in this type of machine, in having the heavy parts of the machine low down in the boat. Peculiarly enough, the Voisins have lately shown a disposition to make even their land machines with what looks like a very low centre of gravity, as, for instance, in the big Sanchez-Besa shown at the recent Paris Show, and the enormous six-seater built and tried recently by the same firm for Baron Deutsch. The big Henry Farman machines with floats have their centre of gravity low, because the lightest floats are quite heavy, and are a long way below the machine. The Curtiss machines also have their centre of gravity fairly low down, though in their case it is rectified by putting the engine high up. However, one must assume that people like the Farman brothers, and the Voisins, and Glenn Curtiss know fairly well what they are doing, and that a low centre of gravity under certain circumstances cannot be quite as evil a thing as one has been taught to believe.

It is quite possible that the low centre of gravity in some of these machines is accounted for by the fact that the makers believe a low centre of gravity to be less dangerous than the placing of the engine in affectionate proximity to the back of the pilot's neck, and this view is rather borne out by the fact that the low centre Voisins, and the Farman hydro-aeroplanes have an enormous span, so that actually taking the centre of gravity in relation to the total span of the machine, it is really no lower than it is in smaller machines, where it appears to be very much higher up. One is a little apt to forget that the effect of a low centre of gravity on a machine is not proportional to its distance below the centre of pressure, but is rather in the ratio of that distance to the span.

The machine of big span with comparatively flat planes has advantages for hydro-aeroplane work in that its large surface enables it to pull the floats off the water at low speeds, and yet to fly fairly fast when flattened out, so that the big span and apparently low centre of gravity fit in very nicely with constructional necessities for water work, but the big span is open to the very serious objection that a small angle of tilt sideways will roll a wing tip under, which is about the worst thing that can happen to a water machine, as the drag of that wing tip will probably slew the machine round, so that the wind will get underneath the planes and turn her over sideways.

Certainly one of the most peculiar machines turned out recently is that built by Mr. Henry Farman, in which there is an enormously long span to the upper plane and a very short lower one, with the tail high up and twin rudders, the whole machine being something like the 80-h.p. Farman familiar to frequenters of Hendon, but apparently very much smaller. Right underneath the lower plane is fitted a little canoe float with a Gnome engine in the middle of it driving a chain to the propeller shaft which is fitted close up under the main plane, the pilot apparently sitting in the bow of the boat in front of and below the lower plane. It would be interesting to have an understandable explanation of this machine, for at a casual glance it would appear that the propeller thrust being so high up it would make the machine exceedingly difficult to control longitudinally either in the air or on the water, for the centre of head resistance would appear to be fairly close to the lower plane, though it is possible that, owing to the lower plane being so short, the total head resistance of the long upper plane might be almost as great as that of the lower plane and the boat combined.

The design suggests that one might make a machine something of this type in which the upper plane is so large that its head resistance counterbalanced the resistance of the boat longitudinally, while its span is enough to control the pendulum motion. In fact, it seems quite possible that the old de Pischoff monoplane idea might be revived with great advantage for hydro-aeroplane work. It would be interesting if some of the readers of The Aeroplane with practical experience of hydro-aeroplane work would give their views on this question.

The Aeronautical Society.

Students attending regular science, engineering, or aeronautical courses at recognised technical colleges, as well as those pursuing the scientific side of aeronautics professionally, are eligible for the students' section, and should apply before December 31, if desirous of being admitted without entrance fee. Applications should be sent to the secretary, 11, Adam Street, Adelphi, W.C.

The studentship is a branch of the technical side of the Society, which affords a technical status to those admitted thereto. Students may attend all meetings, receive the Society's publications, are admitted at half the usual membership fee, and are exempt from payment of entrance fee on transferring to associate fellowship.

The Council desires to thank Mr. Harry A. Turrill for the gift of a flying fish.—Bertram G. Cooper (Sec.).

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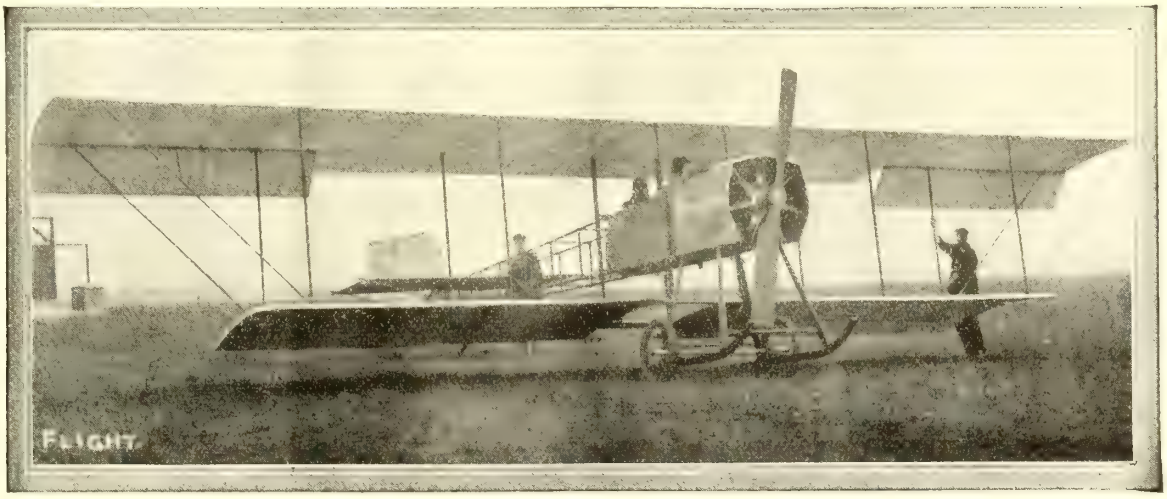
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Hostile Measures.

BY P. K. TURNER.

Some time ago it was reported in one of the leading London dailies, in good English and the utmost seriousness, that a certain great Power is engaged in training war eagles to oppose aeroplanes. It appears that the first stage in the training is to place their daily meal in the pilot's seat of an aeroplane, so that whenever they see a machine they at once make a dash for the pilot's seat, and seek whatsoever they may devour. After this they are kept hungry for a few days, and are then let loose in a field from which, a few moments before, large aero-models, with balloons to lift them, have been sent up, with the usual one-course eagle's breakfast on board.

The main difficulty, of course, has been to teach them to distinguish between friend and foe. The first necessity is to have all one's own machines painted in one peculiar colour, so that they shall know which is which. Next, it must be impressed upon them that only foreign pilots taste nice, and herein lie difficulties. It has occurred to me that eagles possess characteristics (as, for example, the steady wing, the keen eye, etc.) which are only found, they say, in total abstainers; so that something might be done by getting the birds used to the avoidance of one's own pilots by offering them, on one's own machines, meat steeped in whisky.

But, after all, the whole idea lacks "finesse," for it is easy for any pilot to fend off eagles with a shot-gun. The suggestions which follow are all practically free from this defect, and I therefore proffer them (with due humility) for consideration by those controlling the Royal Flying Corps.

Firstly: as soon as the Government realise that there is a chance of war with a foreign nation, secret orders will be issued to the Post Office and the steamship lines, and every package, letter, or bale of goods which goes to that country will have inserted in it, with a special instrument modelled on a gall-fly's egg-laying apparatus, some hundreds of the eggs of the common wood-worm. These will, of course, spread over the country, and will, in the course of time, attack their aeroplanes, eating their way into wing-spars and fuselage members till the whole machine is simply a khaki'd sepulchre, fit to break up when used.

Secondly: all garrison artillery will be provided with shells filled, not with powder, but with the spores of the minute fungus which causes dry-rot. As soon as news is received that a flight of hostile machines is to be expected, a continual vertical fire will be kept up, so providing our shores with a veritable cheveux-de-frize of living dry-rot. Our own machines could best be protected by covering the whole machine with two layers of thin steel plate, through which could be passed the engine cooling water, thus rendering the machine simultaneously bullet and bacteria-proof, and doing away with the useless weight of radiators.

Thirdly: the National Physical Laboratory should at once commence experiments in the breeding and training of "Teredo Navalis,"* to see whether they can produce a 40-knot "teredo" with a periscope eye, which, remaining concealed beneath the surface, can, like a submarine, still look around it, and, perceiving a hostile marine 'plane, will at once attack it, boring through the floats and bringing machine and pilot to a watery grave.

Fourthly, and lastly, to cover the remote contingency of any failure in the above methods, steps must be taken to nullify the pilots. After much thought, it would seem to me that the best method of doing this is to ensure that each pilot "does in" not only himself, but also his machine, and for this purpose I would most respectfully advise as follows:—

Spies must be sent to the enemy's hospitals, the government lymph factories, the medical colleges—everywhere, in fact, where the army doctors are likely to congregate. These must be men of strong personality, and they must persuade or hypnotise the army surgeons into a firm belief in the serum treatment. Then, on the outbreak of hostilities, all that remains is for the spies to get attached to the Army Medical Corps supply wagons, and, removing the contents of the various serum tubes therein, substitute for them a secret solution, which will soon be injected into all the pilots (a notably hypochondriac class). And this secret solution will have been prepared from the blood of tumbler pigeons.

[*"Teredo Navalis" is a form of marine worm which attacks ships, wooden jetties, etc., riddling them through with holes of about ¼ inch diameter—producing, in fact, the results of a glorified wood-worm.—Ed.]

An Aid (?) to Air Scouting.

An enterprising daily reports that "dictagraphs," presumably similar to those used in some offices, are to be used by French air scouts, who will talk their observations into the machines instead of writing them, so as to have both hands free for the controls. The idea suggests that the person reading the record will have to listen to an excellent imitation of a Gnôme engine running, so that it may be somewhat difficult to understand the rest of the message.



THE DIFFERENCE.—A snapshot of the crowd flocking to the recent Aero Show at the Grand Palais, Paris. Will Olympia see anything like this in February?



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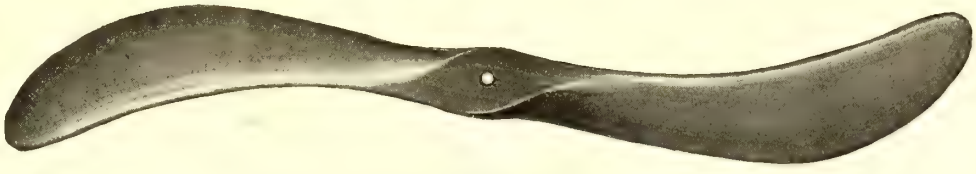
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Dirigibles and the Nations.—(*Continued.*)

BY W. E. de B. WHITTAKER.

At this point it will perhaps be of interest to tabulate the dirigible fleet of Great Britain as shown in a recent statement made in the House of Commons by the Secretary of State for War.

Army.—"Beta."
"Gamma."
"Delta."
"Gamma II" (under construction; expense shared by Navy).

Navy.—"Willows."
"Parseval" (under construction).
"Astra-Torres" (under construction).

A comparison between these figures and those relating to two great Powers given in last week's Aeroplane reveals an unpleasant state of affairs. It is useless to declare that much progress has been made in the course of the past three months. The lack of previous effort is too harmful in its results. Other nations have an aerial fleet. We must build one.

The following table gives the numbers of the respective fleets of dirigible balloons owned by France, Germany, and Great Britain :—

Military Dirigibles.

France.		Germany.	
In use	8	In use	9
On trials	4	On trials	—
In construction	4	In construction	6
Doubtful	2	Doubtful	5
Total	18	Total	20

Great Britain.

In use	4
On trials	—
In construction	3
Doubtful	—
Total	7

Privately Owned Dirigibles.

France.		Germany.	
In use	—	In use	7
On trials	—	On trials	—
In construction	1	In construction	3
Doubtful	4	Doubtful	5
Total	5	Total	15

Great Britain.

Only one—and that out of date.

The author of the article in "Le Temps" points out that in the not improbable case of war between France and Germany the former country could only place eight dirigibles of antique design and low speed against sixteen highly efficient and fast airships of the latter State. The docket "privately owned" means little in such an empire as Germany, where everything is regarded as subordinated to the public good. The "public good" in the German vocabulary implies that which will bring success to the Imperial troops. Military efficiency has overshadowed the commonweal to an extent not readily understood in this country. The eagles of the Kaiser must be carried to victory whatever may be the cost.

In calculating efficiency numbers mean but little—it is the condition of each unit which counts. In war, a small but highly-trained army can teach the eternal lesson to countless legions of raw recruits, else would Cæsar's triumphant progress have ended long before he saw the white cliffs of Albion, or the blue serenity of the Rhine. The comparative figures of power balloons in France and Germany are at sight not uneven, but the most fragmentary examination will reveal the great difference. France has not moved since 1910, so far as its lighter-than-air service is concerned. Germany, on the contrary, has used every moment of the common day to extend and elaborate its aerial defences.

Of unpleasing stolidity, the German has that virtue common to all mediocrity of being, to use Strafford's famous principle, "Thorough." As a nation, Germany is rarely affected by sudden passions or waves of popular feeling. Conquest appeals to them because it is a means of extending the ramifications of commerce, and not because of the glory. Therefore, when aviation ousted the dirigible for a space, so far as popular enthusiasm in other countries was concerned, the authorities were not impressed. They realised the importance of the aeroplane and created an aviation corps which now stands second in the world. At the same time, they did not relax their efforts to encourage the furtherance of aeronautics in general. Time after time dirigible after dirigible made fine flights, only to be utterly wrecked in the end. Thousands of pounds went in experiments with no apparent return. But now, after seventeen years of hard work, Germany has in its possession a type of airship of high efficiency. Progress of late has been such that much is to be expected in the future.

This stage of perfection has not been reached by rigid attention to economy. There is nothing financially encouraging in a constant series of smashes. Improve-



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ments in such matters are almost imperceptible at first and only the perspective of years can reveal the actual moment of greatest advancement. It is therefore necessary, firstly, to have faith in the science, and, secondly, to spend money lavishly on the work. The purchase of one or two dirigibles at fancy prices will make it possible to train pilots and will give experience in handling and upkeep; but a real knowledge of the difficulties can only be obtained by actually building.

A modern battleship costs £2,000,000 or even more. An efficient dirigible balloon can be purchased for £30,000—that is, for the omission of a single unit of the King's Navy, a large fleet of dirigibles of the latest design could be purchased. And whatever Mr. Norman Angell and his friends may say, perfect preparation for war is the surest guarantee of commercial prosperity. The first secret of success in war is to be in a condition to strike the first blow, and even the kindest friend of Great Britain cannot accuse it of being unduly ready. Our negligence in supplying the needs of the fighting forces puts us in an invidious position in the councils of the nations. We may speak of using our influence to curb the aggressiveness of a turbulent member of the concert of Europe, but if we are not in a fit condition to back up our principles by force, then our protest cannot make a due impression.

The lessons of the past have little effect on the British people, else would not South Africa have left a deeper mark on the national character? We have blundered through in the past, and in the future it may be the same for a while, but the end must come some time.

Naval and Military Aeronautics.

GREAT BRITAIN.

The following appointments were announced at the Admiralty on December 18th:—

Commanders—O. Schwann, to the President, additional, as Assistant to Director of Air Department, to date Nov. 25th.

Lieutenant—C. J. L'Estrange-Malone, to the Admiralty, as Assistant Director of Air Department, to date November 25th.

Engineer—Lieutenant G. W. S. Aldwell, to the Admiralty, as Engineer Inspector in Air Department, to date November 25th.

Royal Flying Corps—Military Wing.

Second Lieutenant Alan Hartree, Royal Artillery, is appointed to the Reserve. Dated December 21, 1912.

The King has been graciously pleased to approve, on the recommendation of the Secretary of State for War, the appointment of Brigadier-General S. B. von Donop as Master-General of the Ordnance and fourth military member of the Army Council, in succession to Major-General Sir Charles F. Hadden, K.C.B., who vacates that post in the early part of next year.

Sir Charles Hadden, whose first commission was in the Royal Artillery in 1873, has been Master-General of the Ordnance since February 8, 1907, and has had his tenure of the office extended twice for a year. A typical example of the painstaking staff officer, his career at the War Office has not been distinguished by as much activity in military aviation as many would have wished. He has done his best, and one wishes him a happy retirement. Aviation in the Army owes little to his support, and the Master-General of the Ordnance can do much to further the aerial efficiency of the British Army.

His successor, of whom one expects better things, is also a Royal Artillerymen, and received his first commission on February 18th, 1880. He is fifty-two years of age, and has a good record as a staff officer during the last seventeen years. It is to be hoped that his knowledge of aviators is restricted and his interest in aviation great.—W.

FRANCE.

The number of aeroplanes and landing places formed for military purposes in France is daily increasing. The local authorities at Brienne-le-Chateau and at Chavanges in the Aube, are considering the advisability of laying out grounds in the vicinity. A delegate of the Ligue Nationale Aerienne is in the district.

On December 15th, at Crotoy, before a military commission, under Captain Destouches, M. Caudron put two 35 h.p. Anzani-engined Caudron biplanes through the required reception tests in a wind of forty-nine miles an hour. Both machines were accepted. Considering the low engine power this performance is little short of marvellous. Captain Destouches thought the weather too inclement for flying, and was agreeably impressed. Later in the day another Caudron biplane (70 h.p. Gnome) was also accepted.

An aeroplane offered by the Société des Anciens du Génie to the French army, was accepted officially on December 15th. It is named the "General-Faidherbe," and is to be attached to the aviation centre at Douai.

Maurice Guillaux has become attached to the French Army as aviator, and flew from Issy les Moulineaux on December 16th, to Saint Cyr, in order to pass the requisite examination. He passed for his military brevet a few weeks ago on a Clement Bayard monoplane (70 h.p. Gnome). He will be remembered as a brilliant pilot of the Caudron monoplanes and biplanes.

The military pilots flying Breguet biplanes at the La Bravelle centre have left for the Etampes centre on serivce.

Lieutenant Aviator de la Morlaye left Marseilles a few days ago for Morocco with nine new aeroplanes.

General de Mas-Latris (commanding the district) visited the military aviation centre at Pau on December 17th. During the course of the afternoon Lieutenants-Aviators Carges, Brulé and Bider made long flights on Blériot monoplanes.—W.

GERMANY.

It is stated in Germany that the Government forbade the Zeppelin firm to sell a dirigible of their construction to the British Admiralty. The statement would appear to be based on truth, though in the case of another firm—the Parseval—no objection was made to the transaction of business with foreign nations.

Lieutenant Aviator Keller, stationed at the Frascati aviation centre, was seriously injured in a fall while flying a monoplane on December 17th.

The price paid for the Schutte Lanz dirigible, recently purchased by the German Government, was 700,000 marks.

A huge new dirigible hangar is to be erected at Jungfernheide, near Berlin, and the existing one is to be greatly enlarged. The aeronautic battalion is to be increased to 150 men.

The Ministry of Marine has erected a wireless telegraph station at Johannisthal with a range of 400 kilometres. It is intended to maintain constant communication with the Zeppelin "L.1" in its numerous voyages.

The following are the stations destined for the fleet of Zeppelins:—Two by the North Sea, one at Emden, and one at Sylt Island, near the Danish frontier, also one near Hamburg.

Two stations on the Baltic—one at Kiel (two dirigibles), and one at Putzig, near Dantzig; also one at Koenigsberg.

Five on the French frontier, Strasburg, Metz, Carlsruhe, Mayence and Cologne; also one each at Frankfort and Dusseldorf.

Two on the Russian frontier at Thorn and Breslau.

Lieutenant Aviator Chabinski had a bad fall from 240 feet while flying with a mechanic as passenger on December 13th. The mechanic was killed at once, and the pilot is seriously injured.—W.

At the first general meeting of the Empire Aviation Fund Society at Berlin, with Major Professor von Parseval in the chair, a review was given of the first year's working. This society was founded to aid principally injured pilots, or their relatives in case of death, and has paid out 7,000 marks to such relations as well as 5,600 marks for the support of aviators during their illness. The present funds stands at 31,000 marks, and considerable gifts and grants have been promised for next year when seventy-odd flower days will be arranged throughout the Empire, the receipts from the sales of the flowers going to swell the coffers of the society.

The naval aviation station at Dantzig-Putzig has been enriched by the addition of an Albatros biplane, purchased with the money subscribed by the general public in that part of Prussia. This is the first naval machine not bought by the German Admiralty.

Seven non-commissioned officers of the German Army and four officers are being instructed in aviation at present at the Aviatik flying school at Mulhouse. This firm is paying

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attention to the "Arrow" type of machine, which is also being built by the Berlin Albatros Company, as it is regarded as possessing a decided future.—B.

ITALY.

M. Paulhan is still making lengthy flights in the Paulhan-Curtiss hydro-biplanes which were recently sold to the Italian Navy, and are at Venice.

There are already twenty-four naval officers under training at the Venice Naval Aerodrome.—W.

GREECE.

The Astra hydro-biplane recently sold to the Navy will be flown by M. Guinard, who has become attached to the Greek Naval service. It is stationed at the Isle of Lemnos.—W.

SPAIN.

From October 10th to November 10th certain tests were made at the Guadalajara Aerostation Park and at the military aerodrome of Cuatro-Ventos, in order that a number of officers might be selected for the aviation corps. At the end of that period fifteen officers passed with credit, five of them holding commissions in the Engineers. To participate officers had to be of the rank of captain or lower, and under thirty years of age. A certificate from their commanding officers was required, and a medical examination was compulsory. At the conclusion of the trials the General Staff was classified in three sections :—1. Officers capable of becoming pilots. 2. Officers capable of becoming observers. 3. Officers not capable of becoming either.—W.

RUSSIA.

A recent Army order has raised the rates of pay due to those soldiers who fly on service for periods in excess of six hours a month by the following amounts each month :—Officers, 200 roubles ; N.C.O.'s, 150 roubles ; first-class mechanics, 75 roubles.—W.

The Royal Aero Club.

The news of the sad accident at Wembley Park on Sunday last, resulting in the loss of Lieut. W. Parke, R.N., and Mr. A. Hardwick, was received at the Club with great sorrow. Lieut. Wilfred Parke, R.N., was a regular visitor at the Club when in town and will be much missed by the members, with whom he was a great favourite. The chairman, Sir Charles Rose, immediately forwarded messages of sympathy on behalf of the members of the Club to the relatives of Lieut. Parke and Mr. Hardwick.

At the committee meeting on the 17th the following aviators' certificates were granted :—370, Midshipman Noel F. Wheeler, R.N. (Bristol biplane, Bristol School, Salisbury Plain); 371, Pierre Gratien (French subject) (Blériot monoplane, Blériot School, Hendon); 372, Joseph Claude Andrews (Petty Officer, R.N.) (Avro biplane, Central Flying School, Upavon); 373, Capt. John Nowell Stanhope Stott (5th Dragoon Guards) (Vickers monoplane, Vickers School, Brooklands); 374, Robert W. Edwards (Shipwright, R.N.) (Short biplane, Royal Naval Aviation School, Eastchurch); 375, 2nd Lieut. William C. K. Birch (Yorkshire Regiment) (Grahame-White biplane, Grahame-White School, Hendon); 376, Vincent P. Taylor (Bristol biplane, Bristol School, Salisbury Plain); 377, Lieut. Reginald Mills (Royal Fusiliers) (Bristol biplane, Bristol School, Brooklands); 378, Lieut. Edward R. L. Corballis (Royal Dublin Fusiliers) (Vickers biplane, Vickers School, Brooklands); 379, Lieut. Robert Valentine Pollok (15th Hussars) (Vickers biplane, Vickers School, Brooklands); 380, Frank Susans (Engine Room Artificer, R.N.) (Short biplane, Royal Naval Aviation School, Eastchurch); 381, George Prickett (Leading Seaman, R.N.) (Short biplane, Central Flying School, Upavon); 382, Sub-Lieut. G. W. W. Hooper, R.N. (Deperdussin monoplane, Deperdussin School, Hendon).

Letter from the Aero Club de France, requesting the Club to give its sanction to the issuing of an aviator's certificate to Mr. Clive Mellor, was considered, and the necessary permission granted.

A Great Oversea Flight.

M. Garros with that certitude which has distinguished him throughout his career as an aviator, has accomplished at the first attempt the first stage of a great flight. Leaving Tunis (Cap Bon) at ten o'clock on December 18th, he arrived at Marsala, Sicily, a distance of ninety miles overseas, at twelve o'clock. Later he flew to Trapini in Sicily, where he landed at 4.30, damaging his petrol tank slightly. He continues his flight to Rome at the earliest opportunity.

Flying Over London.

Mr. J. B. Manio attended before the committee of the Royal Aero Club, and explained the circumstances under which he came to be flying over the City of London on December 5th, contrary to the Club regulations, and as to his subsequent descent on a house at Palmer's Green. The committee, after considering all the circumstances of the case and his assurance that he had no intention of infringing the regulations of the Club, unanimously decided that his certificate be suspended in the United Kingdom until March 31st, 1913.

Suspensions by the F.A.I.

Letter from the Fédération Aeronautique Internationale of November 29th, 1912, notifying suspensions of Mr. Lincoln Beachey and Mr. Farnum T. Fish, until July 1st, 1913, pronounced by the Aero Club of America, has been received by the Royal Aero Club.

Aerial Reconnaissance.

An aviator named Zippa, attached to the German aviation corps, landed on Friday in French territory at Marnay, near Vesoul (Haute-Saône). He was detained by the police and his machine seized. He stated that he had flown from Mulhouse (Alsace-Lorraine) and had lost his way in the mist. The French authorities have adopted the only means possible to check this system of aerial espoinage.



"A LONG PULL, AND A STRONG PULL AND A PULL ALL TOGETHER."—Although the picture only shows strikers allegory for the Aeroplane Industry being hauled out of the Slough

The Wembley Accident

On Wednesday last, after the inquest on the late Lieut. Parke, R.N., and Mr. Arkell Hardwick, the coroner's jury returned a verdict of accidental death, adding, in consequence of remarks by the coroner, a verdict to the effect that officers should not be allowed to fly experimental machines except by permission of their superiors—further comment will be made on this subject later on. Lieut. Parke was buried at Lyme Regis on Thursday, the funeral being—at his own request—of the quietest possible kind. Mr. Hardwick was buried at St. Pancras Cemetery, Finchley, on Friday. On Friday the Accidents Committee of the Royal Aero Club held an enquiry into the causes of the accident.

Public Safety and Accidents Investigation.

Report on the Fatal Accident to Mr. Henry J. Delaval Astley at Belfast, on Saturday, September 21st, 1912, at about 3.55 p.m.: Brief description of the accident.—Mr. Henry J. Delaval Astley, flying on a Blériot monoplane fitted with a 70 h.p. Gnome, at the Balmoral Grounds, Belfast, on Saturday, September 21, 1912, was giving exhibition flights. Mr. Astley had been in the air for about four minutes, and during that time had made one or more exceedingly sharp turns. He entered the flying ground at a height of about seventy feet and passed in front of the grand stand at about thirty feet from the railings. When about eighty yards farther on, and about forty-five yards from the end of the enclosure, having then come down to about forty feet from the ground, Mr. Astley made an exceedingly sharp left-hand turn, banking very steeply, apparently intending to keep inside the flying ground. He had turned through a semi-circle and then found himself heading for the spectators; immediately afterwards, the aircraft struck the ground on the left wing, just inside the railing, on the other side of which were spectators. Mr. Astley was killed practically instantaneously, his head having been thrown forward against one strut of the cabane.

Mr. Henry J. Delaval Astley was an experienced aviator, having made a large number of flights both in Great Britain and abroad.

He was granted his Aviator's Certificate No. 48 on January 24th, 1911.

Report.—The committee sat on Monday, October 25th, and Tuesday, December 3rd, 1912, and heard the evidence of eye-witnesses.

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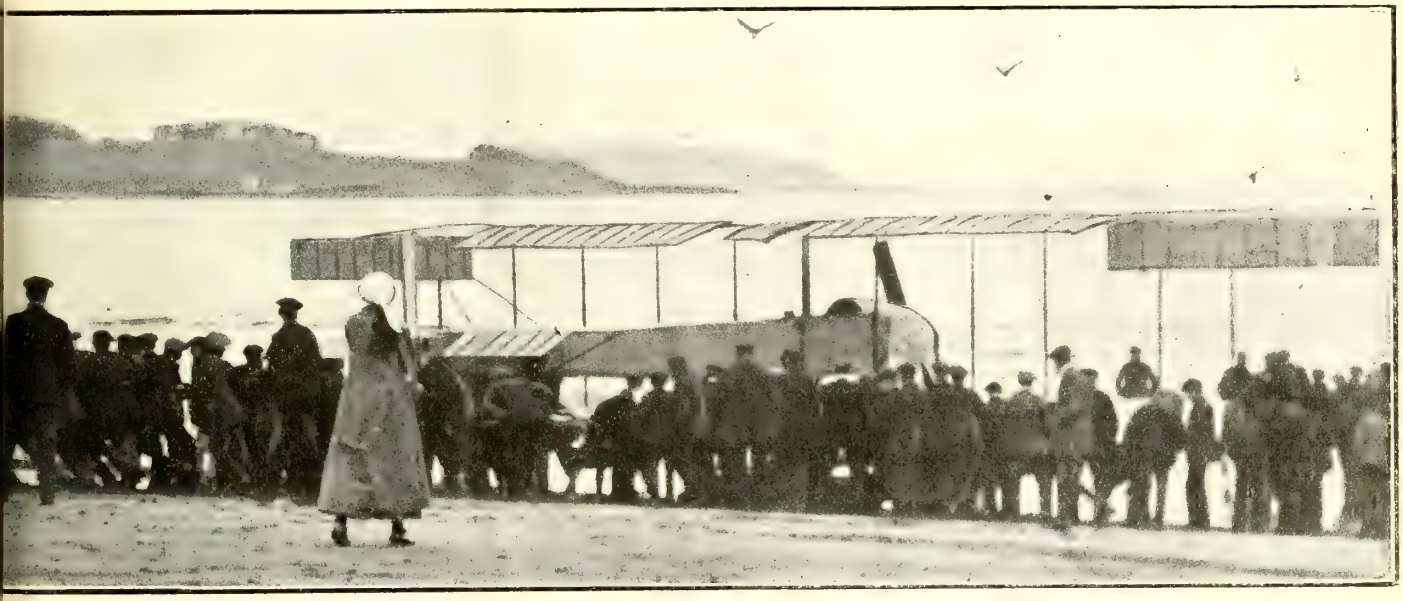
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h hauling Commander Samson's Short biplane out of the mud at Carlingnose, on the Firth of Forth, it may be taken as an Prejudice by the combined efforts of certain Members of Parliament and of the Press. *(Photograph by courtesy of "The Edinburgh Evening News.")*

attention to the "Arrow" type of machine, which is also being built by the Berlin Albatros Company, as it is regarded as possessing a decided future.—B.

ITALY.

M. Paulhan is still making lengthy flights in the Paulhan-Curtiss hydro-biplanes which were recently sold to the Italian Navy, and are at Venice.

There are already twenty-four naval officers under training at the Venice Naval Aerodrome.—W.

GREECE.

The Astra hydro-biplane recently sold to the Navy will be flown by M. Guinard, who has become attached to the Greek Naval service. It is stationed at the Isle of Lemnos.—W.

SPAIN.

From October 10th to November 10th certain tests were made at the Guadalajara Aerostation Park and at the military aerodrome of Cuatro-Ventos, in order that a number of officers might be selected for the aviation corps. At the end of that period fifteen officers passed with credit, five of them holding commissions in the Engineers. To participate officers had to be of the rank of captain or lower, and under thirty years of age. A certificate from their commanding officers was required, and a medical examination was compulsory. At the conclusion of the trials the General Staff was classified in three sections:—1. Officers capable of becoming pilots. 2. Officers capable of becoming observers. 3. Officers not capable of becoming either.—W.

RUSSIA.

A recent Army order has raised the rates of pay due to those soldiers who fly on service for periods in excess of six hours a month by the following amounts each month:—Officers, 200 roubles; N.C.O.'s, 150 roubles; first-class mechanics, 75 roubles.—W.

The Royal Aero Club.

The news of the sad accident at Wembley Park on Sunday last, resulting in the loss of Lieut. W. Parke, R.N., and Mr. A. Hardwick, was received at the Club with great sorrow. Lieut. Wilfred Parke, R.N., was a regular visitor at the Club when in town and will be much missed by the members, with whom he was a great favourite. The chairman, Sir Charles Rose, immediately forwarded messages of sympathy on behalf of the members of the Club to the relatives of Lieut. Parke and Mr. Hardwick.

At the committee meeting on the 17th the following aviators' certificates were granted:—370, Midshipman Noel F. Wheeler, R.N. (Bristol biplane, Bristol School, Salisbury Plain); 371, Pierre Gratien (French subject) (Blériot monoplane, Blériot School, Hendon); 372, Joseph Claude Andrews (Petty Officer, R.N.) (Avro biplane, Central Flying School, Upavon); 373, Capt. John Nowell Stanhope Stott (5th Dragoon Guards) (Vickers monoplane, Vickers School, Brooklands); 374, Robert W. Edwards (Shipwright, R.N.) (Short biplane, Royal Naval Aviation School, Eastchurch); 375, 2nd Lieut. William C. K. Birch (Yorkshire Regiment) (Grahame-White biplane, Grahame-White School, Hendon); 376, Vincent P. Taylor (Bristol biplane, Bristol School, Salisbury Plain); 377, Lieut. Reginald Mills (Royal Fusiliers) (Bristol biplane, Bristol School, Brooklands); 378, Lieut. Edward R. L. Corballis (Royal Dublin Fusiliers) (Vickers biplane, Vickers School, Brooklands); 379, Lieut. Robert Valentine Pollok (15th Hussars) (Vickers biplane, Vickers School, Brooklands); 380, Frank Susans (Engine Room Artificer, R.N.) (Short biplane, Royal Naval Aviation School, Eastchurch); 381, George Prickett (Leading Seaman, R.N.) (Short biplane, Central Flying School, Upavon); 382, Sub-Lieut. G. W. W. Hooper, R.N. (Deperdussin monoplane, Deperdussin School, Hendon).

Letter from the Aero Club de France, requesting the Club to give its sanction to the issuing of an aviator's certificate to Mr. Clive Mellor, was considered, and the necessary permission granted.

A Great Oversea Flight.

M. Garros with that certitude which has distinguished him throughout his career as an aviator, has accomplished at the first attempt the first stage of a great flight. Leaving Tunis (Cap Bon) at ten o'clock on December 18th, he arrived at Marsala, Sicily, a distance of ninety miles overseas, at twelve o'clock. Later he flew to Trapini in Sicily, where he landed at 4.30, damaging his petrol tank slightly. He continues his flight to Rome at the earliest opportunity.

Flying Over London.

Mr J. B. Manio attended before the committee of the Royal Aero Club, and explained the circumstances under which he came to be flying over the City of London on December 5th, contrary to the Club regulations, and as to his subsequent descent on a house at Palmer's Green. The committee, after considering all the circumstances of the case and his assurance that he had no intention of infringing the regulations of the Club, unanimously decided that his certificate be suspended in the United Kingdom until March 31st, 1913.

Suspensions by the F.A.I.

Letter from the Fédération Aeronautique Internationale of November 29th, 1912, notifying suspensions of Mr. Lincoln Beachey and Mr. Farnum T. Fish, until July 1st, 1913, pronounced by the Aero Club of America, has been received by the Royal Aero Club.

Aerial Reconnaissance.

An aviator named Zippa, attached to the German aviation corps, landed on Friday in French territory at Marnay, near Vesoul (Haute-Saône). He was detained by the police and his machine seized. He stated that he had flown from Mulhouse (Alsace-Lorraine) and had lost his way in the mist. The French authorities have adopted the only means possible to check this system of aerial espoinage.

The Wembley Accident

On Wednesday last, after the inquest on the late Lieut. Parke, R.N., and Mr. Arkell Hardwick, the coroner's jury returned a verdict of accidental death, adding, in consequence of remarks by the coroner, a verdict to the effect that officers should not be allowed to fly experimental machines except by permission of their superiors—further comment will be made on this subject later on. Lieut. Parke was buried at Lyme Regis on Thursday, the funeral being—at his own request—of the quietest possible kind. Mr. Hardwick was buried at St. Pancras Cemetery, Finchley, on Friday. On Friday the Accidents Committee of the Royal Aero Club held an enquiry into the causes of the accident.

Public Safety and Accidents Investigation.

Report on the Fatal Accident to Mr. Henry J. Delaval Astley at Belfast, on Saturday, September 21st, 1912, at about 3.55 p.m.: Brief description of the accident.—Mr. Henry J. Delaval Astley, flying on a Blériot monoplane fitted with a 70 h.p. Gnome, at the Balmoral Grounds, Belfast, on Saturday, September 21, 1912, was giving exhibition flights. Mr. Astley had been in the air for about four minutes, and during that time had made one or more exceedingly sharp turns. He entered the flying ground at a height of about seventy feet and passed in front of the grand stand at about thirty feet from the railings. When about eighty yards farther on, and about forty-five yards from the end of the enclosure, having then come down to about forty feet from the ground, Mr. Astley made an exceedingly sharp left-hand turn, banking very steeply, apparently intending to keep inside the flying ground. He had turned through a semi-circle and then found himself heading for the spectators; immediately afterwards, the aircraft struck the ground on the left wing, just inside the railing, on the other side of which were spectators. Mr. Astley was killed practically instantaneously, his head having been thrown forward against one strut of the cabane.

Mr. Henry J. Delaval Astley was an experienced aviator, having made a large number of flights both in Great Britain and abroad.

He was granted his Aviator's Certificate No. 48 on January 24th, 1911.

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"A LONG PULL, AND A STRONG PULL AND A PULL ALL TOGETHER."—Although the picture only shows strikers in allegory for the Aeroplane Industry being hauled out of the Slough of Prejudice by the combined efforts of certain Members of Parliament and of the Press.



Hauling Commander Samson's Short biplane out of the mud at Carlingnose, on the Firth of Forth, it may be taken as an (Photograph by courtesy of "The Edinburgh Evening News")

A Flight of Fancy.

BY J. DUDLEY STURROCK.

Marmaduke Peterkins was a nut—a gorgeous glossy nut. And this being so, it was only consistent that he should be lunching one fine October morning with a dainty little lady at the Carlton Grill.

"It's this way, Gabrielle," he was saying, as he defaced a perfectly good table-cloth with an alleged sketch of the body for his new Métallurgique. "It's this way. If I have it painted pink it won't match any sort of socks, and if I have it painted yellow, like——" he broke off and looked up. Gabrielle was certainly distractingly pretty. In the deep blue pools of her eyes a glint of sunshine danced joyously, and her mouth—her mouth was an inspiration! Marmaduke surveyed her with interest, and languidly broke fresh ground.

"By the way, Gaby, how about getting married?"

Gabrielle received the suggestion amiably enough. "That's funny, Marmy, I was wondering the same thing! In fact I had made up my mind to do it some days ago!"

Marmy acknowledged the compliment in what he hoped was a suitable manner.

"But what will your father say?" Gabrielle went on. She was able to trace her descent through two generations of Chicago packers, and was therefore practical. "What is he like?"

"Oh, he's a fine fellow," Marmy began, with well-simulated warmth, but his voice tailed off, "—a fine fellow." He resumed his attack on the table-cloth with elaborate unconcern.

"Well, there's no time like the present," Gabrielle hinted darkly.

"Eh? What for?" asked he with some uneasiness.

Gabrielle sat up energetically. "Marmy, you get off to the 'phone and tell him about it—right now!"

"Oh, I say——" But the blue eyes met his unflinchingly. "Very well, then." Marmy rose and drifted out of the room.

He returned shortly with a detached air, humming softly. "Oh, you beautiful doll, you great——"

"Marmy!"

"——big——"

"Marmaduke!" Gabrielle looked very firm. "What did he say?"

"Oh, yes, of course," began Marmaduke airily. "Peculiarly unreasonable—peculiarly! He's a funny fellow."

"Funny! I thought you said he was a fine fellow!"

He quailed. "Yes, a fine, funny fellow—that is——"

"Go on," commanded Gabrielle coldly.

The wretched one fidgeted. "—that is, he's a little opposed to your being on the stage—a little." He waited, eyeing her.

"Indeed!" she murmured sweetly. And then with apparent irrelevance, "'Peterkins' Potted Petrol—Carry it in your Waistcoat Pocket!'"

There was a heavy pause.

"Well, what of it?" desperately from Marmy.

"What of it?" Gabrielle flamed virtuously. "Am I not good enough for him, nasty old—old gasoliny man? I, a true-born Amurrican! Because I happen to be a member of one of the noblest professions on earth!"

"A what?" interrupted he, thoughtlessly.

"An actress," she translated with irritation. "Tell me what he said at once!"

Marmy produced an elaborate cigarette case. "Oh, just that—and something about money—and being a self-made man—and all that. How does one become a self-made man, Gaby? Hanged if I care—I'm made already!" he finished with a magnificent gesture.

"Oh, you are, are you!" Gabrielle lapsed into meditation. Suddenly she looked up. "Marmy, listen! I have an idea!"

Marmaduke had had some. He looked apprehensive. "Well?"

"A splendid idea!" she went on breathlessly. "To begin with, you'll have to be an aviator!"

"Ha! Ha!" About a yard and a half of amber fell with a crash to the floor. "Very good—very." He stole a wary look at her. "Now, there's a new thing in bracelets at Asprey's——"

"—an aviator," continued Gaby mercilessly, "—a—birdman, and you'll wear lovely overalls—and tumble about—"

"Tumble about!"

"—and then we'll go off in an aeroplane and get married! An aeroplane with PETERKINS' POTTED PETROL on the wings!"

"Ah!" said he more hopefully, "it would fall off!"

"Painted on, stupid." she flung at him scornfully. "And—there you are!"

"Yes, there we are!" repeated he with interest. "Where?"

"Oh, anywhere. But don't you see how crazy your pa would be about it?"

"I do," he agreed with some warmth. "And I've seen him when he's been crazy about things before. He has a way of his own of showing his delight. Look here, Gaby, old thing, it's a splendid idea, but it won't do."

But Gaby was adamant. No amount of skilful cajoling could rid her mind of the theory that the future of Potted Petrol lay in her lily-white hands, and eventually the dismal hope of the Peterkins found himself committed to a course of instruction and the purchase of a hundred-horse-power Nieuport. At the conclusion of this satisfactory arrangement—satisfactory to one of the conspirators, at any rate—Gaby rose and struggled into her leopard-skin coat.

"Now, Marmy, don't forget!" she said, her blue eyes taking stock of him with the innocent stare of a Persian kitten. "I'll give you three weeks."

"I've read it," he retorted briefly.

She withered him with a glance, and led the way to a taxi.

"Good-bye, dear," Gabrielle purred out of the window, "Remember, a hundred horse-power Nieuport!"

Marmaduke turned to the driver. "Hilarity—stage-door," said he with what to the driver seemed unnecessary harshness.

He stood on the cold, pitiless pavement reviewing the situation, until his eye happened on the notice-board outside His Majesty's. "Drake," said he aloud. "Ah!" and passed on. By the time he reached the top of the Haymarket the barometer of his spirits was rising, and he found himself drawing a subtle analogy between himself and the famous Elizabethan admiral. After all, great men were created by such emergencies as he found himself in, and there was no knowing—England might have need of Marmaduke Peterkins. . . .

He squared his shoulders, surveyed his white spats with complacency and stepped out briskly towards Piccadilly.

The life of Marmaduke for the next three weeks—is it not written in the columns of THE AEROPLANE? How he rolled assiduously in the grey mornings—how he accomplished his first "straight"—how he dined the whole staff of Hendon on the day of his first turn—and how he got his brevet with two days to spare? In private life he was a nuisance to his friends. He breakfasted on "leviers de gauchissement," lunched on "fuselages," and supped on "cloches." And then there was that dark moment when he threw a respectable tea-fight into confusion by an airy reference to a "shongs davvyashyong!" But—no matter. He was able to present himself at the stage-door of the Hilarity one evening three weeks after the fateful lunch with a marriage license in his pocket, and a seraphic smile on his face.

"You've really done it, then!" Gabrielle beamed. "And we can go off to-morrow morning! Oh, it's great! I'm so excited! Where are we going?"

"That," replied Marmaduke with excusable hesitation, "is doubtful. But the arrangement is for Canterbury!"

.

The following morning, Peterkins senior sat down to breakfast in an unusually amiable frame of mind. Potted Petrol was going strong, and the catch-words "Carry it in your Waistcoat Pocket" were admittedly dealing a heavy blow to the trade in two-gallon cans. But presently a little scream from Mrs. Peterkins roused him from his bacon and eggs.

"What is it, my dear?" he asked ponderously.

She passed him the "Daily Wire" and rose ominously.

"I told you so, Samuel," was all she said, but Samuel shuddered. He cast his eyes at the column indicated.

"A NEW ERA FOR THE AEROPLANE!"

"Enterprising flight by Mr. Marmaduke Peterkins to take place to-day!

"We have always contended that the aeroplane of the future will find one of its chief uses in the field of commerce. Our own humble efforts have——"

Samuel glanced down the column with growing irritation. Then "Ah!" he ejaculated, and read on studiedly:—

"—Mr. Marmaduke Peterkins, son of the well-known Samuel Peterkins, of Potted Petrol fame, will take a well-deserved position to-day among the great men of aviation. He has been enterprising enough to plan a tour in a monoplane—a 100-h.p. Nieuport—mainly for the purpose of ex-

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"THE AEROPLANE," 166, PICCADILLY.

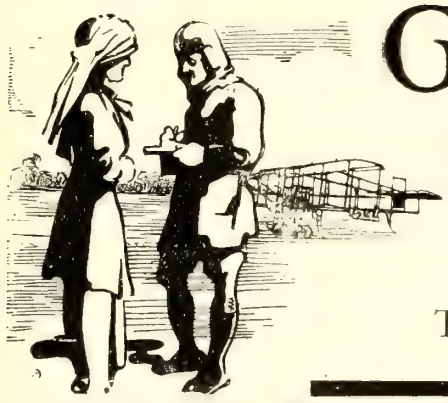


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ploiting his father's commodity. He will start from Hendon at 9 a.m. this morning, taking with him Miss Gabrielle Gherkin, of the Hilarity Theatre. Their first stop will be at Canterbury, where the up-to-date couple will be married by special license——"

Samuel rose with murder in his eye, and slammed the "Wire" on the table. "Henry," to the scandalised butler, "is my car here?"

Henry signified that it was. Samuel rushed out, avoiding the eye of his outraged spouse, and dived into his Daimler.

"Hendon!" he ordered, "Hendon—like hell!"

At the aerodrome he dashed into the office, and thrust a card—a business card—at the unoffending clerk.

"Ah, yes," said that individual civilly, "commercial travellers are dealt with at the Piccadilly office."

"Travellers!" roared Samuel, "I am PETERKINS! Where is my son?" He glared round the office and looked carefully under the table.

The clerk rose politely. "Oh, of course, sir. He left half an hour ago—for Canterbury. He took Miss Gherkin."

Samuel sank into a chair. "Why the blazes did you let him go?" he groaned.

The clerk intimated that it was no concern of his; and that if it had been, a Nieuport was a difficult thing to have an argument with when it had made up its mind to fly.

"Fool!" was Samuel's comment. Then he got up deliberately. "Look here young man, I want an aeroplane to take me to Canterbury—a fast one!"

"Certainly, sir. I'll see about it at once." He went briskly out to the sheds while Samuel weaved diabolical schemes of vengeance around his adventurous heir.

The clerk returned with the information that Mr. Turnham, one of their most trusted pilots, would take him at once, in a Blériot. Samuel thrust a blank cheque on the desk, and rushed out on the field. His instructions to Turnham, as he settled the tails of his frock-coat around him in his cramped seat, left little to the imagination.

"You won't want your top-hat, Mr. Peterkins?" suggested Turnham mildly.

By way of answer, Samuel jammed the hat further on his head, and glared offensively. The next moment they were off.

.

Samuel cherishes no very pleasant recollections of his first flight. The wind shrieked at him mockingly as they climbed high over the Edgware Road, and the tails of his coat broke loose and trailed out along the fuselage. That his hat stayed on was a lasting tribute to Lincoln and Bennett. But they seemed to be moving, he thought with a certain malicious anticipation. Up over the river they soared, on towards Croydon, and what seemed to be—and was—a dense wall of fog. Then the rain came at him and cut at his florid cheeks until he sobbed aloud with pain. Suddenly the fog took them to its clammy bosom, and from the normal din of the engine, Samuel could have sworn that they were hanging motionless in grey chilling space. Oh why did he ever leave Lancaster Gate, he moaned, feeling the rain trickling down his neck and stinging his numbed hands gripping the fuselage. And so they roared on, through the murk, Turnham occasionally casting uneasy glances at the compass. . . . Half an hour passed—three-quarters. Would they never stop, Samuel wailed—and was answered immediately. The din of the Gnome died away pitifully into ominous silence, and Samuel's cramped body was jerked forward. He noticed the propeller turning idly ahead as the Blériot whistled down through the fog. At least, he supposed it was going down, although the machine seemed to be in the same position. Turnham was peering intently ahead. . . . Then Samuel's neck was flung back and BUMP—BUMP—bump. . . . Ten seconds later Turnham jumped out lightly as they came to a standstill.

"That was lucky, Mr. Peterkins," he said pleasantly.

Samuel stared round helplessly through the dank mist. There was the ground to be sure, but——

"We've run out of petrol, sir. It's a good thing you've—" Turnham looked suggestively at Samuel's ample waistcoat.

Samuel understood. "I'm afraid," he said with remarkable dignity from his perch, "I'm afraid I—I haven't any in my pocket to-day!"

A clammy silence ensued. Then Turnham whistled softly. "Then we shall have to wait till something comes along," said he: "this looks like Sheppey."

"Looks like nowhere on earth," Samuel jerked out through chattering teeth, and dashed the rain savagely from his hat-brim.

Turnham reassured him as to their whereabouts in the universe and helped him out. Samuel wrenched his hat off with difficulty, and setting it on the ground beneath the shelter of the left wing, sat down on it carefully. Turnham listened to a few epigrammatic remarks from the petrol magnate, and retreated to the other wing, vainly trying to light a cigarette. They shivered in their misery for twenty minutes. Then a hum broke in upon them—the unmistakable hum of a Gnome—and ceased abruptly. . . .

Two figures emerged out of the gloom and peered under the dripping edge of the wing.

"Why, it's the guv'nor!" came the astounded voice of Marmaduke. "Fancy meeting you here," he went on hysterically. "Sheltering from the sun? Nice day for a hop, isn't it?"

The wretched hopper's long suffering hat gave out at this point, and he measured his length in the wet grass. As he got to his feet, a steel ribbon under the wing vibrated angrily, and he put a hand to his head. His face was not pleasant to look upon.

Gabrielle chose this rather unfortunate moment for introducing herself. "How do you do, Mr. Peterkins?" she asked politely.

"I don't want any impertinence from you, miss," thundered Samuel.

"Mrs.," corrected Gabrielle gently.

Samuel glared at her with a vacant expression.

"We've just come from Canterbury," she explained, "and we've landed to put some more petrol in!"

Turnham strolled up to the pleasant family party. "Petrol!" he exclaimed. "Have you any, then?"

"Of course," Gabrielle replied in surprise, and her eyes wandered.

"Don't look at my waistcoat!" roared Samuel. "Damn my waistcoat!"

Then Gabrielle looked wise. "I can let you have some, Mr. Peterkins," said she graciously, and fumbled in the pocket of her oilskin. "At a price, that is," she concluded ingenuously.

"H'm, very business-like—very!" spluttered Samuel. "I think I have a shilling," and began to fumble likewise.

"Oh, a shilling wouldn't be enough," said Gabrielle sweetly. "Three thousand!"

"Three thousand devils!"

Gabrielle sighed patiently. "No—pounds, Mr. Peterkins. Three thousand a year!"

Samuel made an alarming noise in his throat, and retreated to his tent. Gabrielle took her mystified spouse by the arm and led him towards the outer darkness.

"Our first stop is Birmingham, isn't it, Marmy?" she was understood to say as they melted away.

A hoarse voice from the left wing halted them. "I'll make it two thousand—not a penny more!"

The amateur financier ran back quickly, and kissed her father-in-law's dripping forehead. "Here you are, dad!" she said, holding out some evil-looking pellets. "You're a dear!"

"I'm a damned fool!" confessed Samuel weakly, "but I do want to get home!"

And the fog lifted obligingly.

Views from the U.S.A.

The "back-to-the-land movement" will never languish while aviation flourishes.—"Columbia State."

The great need of aviation just now seems to be a machine that will fly either side up.—"Springfield Republican."

History Repeats Itself.

Lecturing on the fossilised prehistoric man found by Mr. Dawson in Sussex, Dr. Woodward is reported by the "Pall Mall Gazette" to have pointed out that it is of extreme significance to note that while in the size of his brain this man far exceeded that of the largest of the apes, he was much inferior in this respect to any other fossil man save only the debatable Pithecanthropus, the celebrated fossil man of Java.

He suffers no less by comparison with the living races of mankind. His skull was further remarkable for the enormous thickness of its walls, wherein it is approached only by the famous fossil man of Neanderthal. No ape shows anything like this brain armature, and the "Pall Mall" remarks that we cannot suppress curiosity as to its meaning.—Of course there were no aeroplanes in those days and consequently no Government Departments to buy them, but evidently the deceased gentleman left a family.



MODERN TACTICS.—Part of an army on the march, disguised against air scouts as a rustic village.

A First Flight with the King of Pilots.

BY MRS. A. DAVIS, DOVER.



The Composer of these "Impressions" with Mr. Cody on the Military Competition Prize Winner.

It has been said—and truly—that flying is a sport for kings. Flying in a "Cody" with the "Colonel" as pilot is an experience of a lifetime.

All ready? Yes! Away we go at a ripping speed along Laffan's Plain. In the air? No, surely. Why, yes! We are climbing steadily and swiftly over tree-tops, balloon sheds. Higher and higher up we go. How grand the air feels and how exhilarating. Higher, and yet higher. Surely, looking down at the world below one must feel dizzy. Yes, just for one second, eyes shut, then open and look at the broad back and fine handling of the aeroplane by the man in front. Feel dizzy for another second if you dare. No, thank you, this is too grand a sport to waste a moment with eyes shut.

How interesting it all is—the most perfect morning, a Maurice Farman living a little to our right, that gem of an aeroplane, the "B.E.2," over our heads, and a Breguet following. Now look down. The buildings are like dolls' houses. The Army airship "Delta" is just rising.

The "Colonel" has taken his hand off the control, and points this way and that to various places of interest. Are those men below? Those tiny dots moving about? How small we are on earth and how big we feel high up in the air in a Cody. Now the pilot turns his head, and calls "Are you all right, enjoying it?" Enjoying it! Why one fairly laughs aloud with joy. Good to be alive? I should think so.

Now for a new experience. Down we go, such a drop. I almost bounce out of my seat. What fun! We are flying alongside the railway, an express is coming towards us. We let her pass, then turn, and in a few seconds have caught the train and raced it. What a toy it looks.

More sport. Surely the pilot has a mad fit on this morning. Down he goes towards his shed, the men run out to meet us, then with a laugh and a wave of his hand, up we go, over the shed. Now for a mad flight, full speed, just clearing trees, hills, men's heads and cows' backs, over the R.A. factory and round the Plain. Oh! what sport, and what a King of the Air! He makes his machine do anything and everything but talk. One laughs aloud with delight, and says: "Fly where you like, 'Colonel,' fly where you like, only go at this speed, it is 'topping.'" And now we are running swiftly on terra firma again. A stop, and the pilot climbs slowly from his seat and looks at his passenger, who draws a long deep breath of satisfaction, and says: "Oh, what a flight, and what an experience!"

Airships and Bomb-Dropping.

The "Military Wochenblatt," the unofficial organ of the German Ministry of War, contains an article by Captain von Stockhausen, adjutant to the military commander of Berlin, on the dropping of explosives from airships and aeroplanes, who says that the Italians were at first fairly successful with the bombs dropped in the Tripoli War but afterwards not at all. He contends that the hits were accidental, for official tests made at Döberitz and in France have proved that it is possible to make accurate hits with air-bombs. He remarks that lack of practice does not account for Italian failures. Presumably the Italians flew only by day and aimed at living objects, and as an explosive body dropped from a height of sixteen hundred feet requires twelve seconds to reach the ground, anyone on the look out can easily avoid it. The Arabs, he remarks, were at first unacquainted with air-bombs, but soon understood their action. He points out that a bomb dropped from a height of sixteen hundred feet has attained a velocity on reaching the earth of over three hundred feet per second, that much of its explosive force is unavoidably lost, and if the charge be very great the bomb is resolved into a number of ineffective atoms. Shrapnel with a time fuse he declares to be at present useless.

Captain von Stockhausen argues that explosive bodies aimed during the day at living objects will not do much harm, and declares that the uneasiness felt in Germany because of the large number of flying machines possessed by the French is, as far as human beings are concerned, groundless. There is more interest, he says, in the dropping of explosives on inanimate objects, but even in this case he thinks that success can only be achieved if a large quantity of explosives, at least 150 to 200 lbs., be dropped at once. The use of aeroplanes for this purpose he asserts to be impossible, and he asks: "What nation possesses an airship at all approaching in value to our Zeppelin cruisers? Is there one non-rigid or semi-rigid airship which can attain such speed or has such carrying power? Can one of them hold an exact course or remain stationary over a definite point?"

Captain von Stockhausen mentions that aeroplanes are useless in the dark, whereas Zeppelins can fly and be directed equally well by day or by night. The advantages of Zeppelin cruisers are, therefore, he concludes, overwhelming. He alleges that Count Zeppelin has been compelled to advance money from his private means to carry on the manufacture of airships at Friedrichshafen, and adds that if this patriotic enterprise is really in financial difficulties an appeal to the German people will certainly not be made in vain.

It will be remembered that when one of the early Zeppelins was burnt some £150,000 was subscribed in a week or so to build another, so he is safe in his assertion, as German enthusiasm is much greater now than at that time.

An Historical Exhibition.

The Director of the Science Museum, Exhibition Road, South Kensington, informs us that a temporary collection at the Museum in illustration of the history of aeronautics and some of the scientific researches which are applied in the design, construction and use of aeroplanes will be open to the public from Monday, December 23, till the end of January

A Visitor from the U.S.A.

One of the most interesting visitors to this country it has been the good fortune of the writer to meet is Mr. Oliver W. Thomas, of the Thomas Aeroplane Co., U.S.A. Mr. Thomas' sympathies are inclined towards the English, as he was born in the Argentine Republic, and educated in this country at Dulwich College, so that he knows the country well enough from the inside not to be deceived by the English manner, which possibly gives an air of stupidity unnatural to those concerned with aviation in this country, and in the course of a long and pleasant evening spent in his company, the writer never once heard him refer contemptuously to British methods, as is so customary with American manufacturers of other mechanical contrivances when they visit this country.

The following account of the development of the Thomas machines has been given to the writer by Mr. Thomas, and will be found most interesting :

The first Thomas aeroplane was designed and built during the latter part of the year 1909 in Hammondsport, N.Y., by Messrs. W. T. Thomas and Oliver W. Thomas, who were born in the Argentine Republic, and later came to London, where they took their degrees in civil and mechanical engineering. The trial flights took place at Hornell, N.Y., during the spring, 1910.

The first exhibition flight was made at Binghampton during the early part of October, 1910, when a flight of three miles was made at an altitude of 200 to 230 feet. The engine used in this flight weighed 250 lbs. and developed 25-28 h.p. In December of the same year a passenger was carried successfully with the same power. Extensive exhibition flights have been made in the States of Louisiana, Mississippi, Ohio, Pennsylvania, New York, Maryland, Maine, and in Ontario (Canada).

Exhibition work in the country of the Thomas aeroplane is very distantly related to exhibition flying in England and Europe, and can only be compared with the most rigorous conditions to be met with in the Army trials. The grounds are usually very rough and the obstructions many; this, coupled with having to make flights generally on schedule develops a sound machine and resourceful aviators.

The low-powered 25-28 h.p. machine above mentioned flew from and landed in an enclosure 425 feet by 300 feet, surrounded by an 8 feet board fence without any trouble, a performance which was, perhaps, a record at that time, and was considered wonderful. (June 8th, 1911.) Exhibition flying has played an important part in developing the machines, with the result that they are capable of handling the army requirements without difficulty.

The standard models are equipped with 50-h.p. and 70-h.p. Kirkham 6-cylinder motors, which have demonstrated their excellence for aeroplane work during the thousands of miles they have flown the Thomas machines.

The petrol consumption of these motors is about .56 for the 50-h.p., and .53 for the 70-h.p., lbs. of petrol per b.h.p. per hour, and the oil consumption is extremely low. These motors are provided with a system of cooling the lubricating oil which enables the consumption to be kept exceptionally low. The weight of the 50-h.p. motor with radiators is 265 lbs., of the 70-h.p. 320 lbs. The weight of the gear-driven 70-h.p. is about 340 lbs.

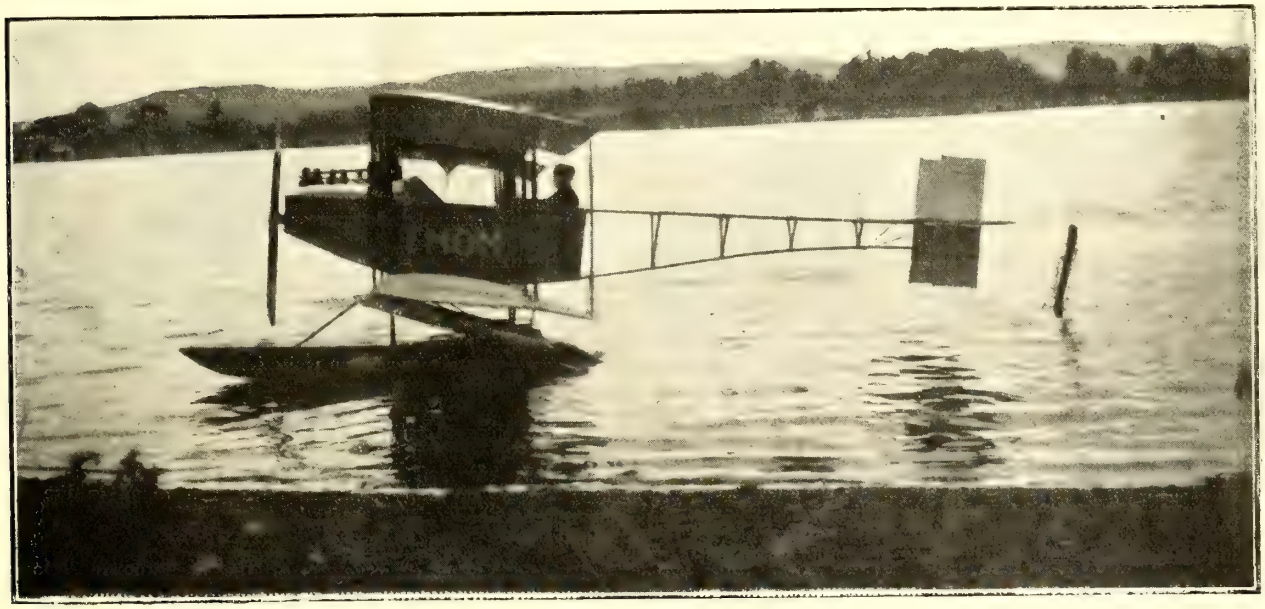
In 1911 the Thomas Aviation School was started with the object of obtaining good flyers for exhibition work. The following pupils have qualified at this school : Walter E. Johnson, Charles F. Miles, Ralph M. Brown, Glen M. Tait, D. C. Patmore, Earl Beers, and several others. Mr. W. E. Johnson has done some excellent flying in both the 50-h.p. and 70-h.p. land and water machines, and is considered one of the finest conservative flyers in the States.

During the past season the Thomas hydroaeroplane has demonstrated its reliability by its consistent flights on all the most important inland lakes of New York State, flights being made on schedule time in practically every instance.

The American endurance record for a passenger was recently broken in a Thomas model 10F 70-h.p. biplane, flown by Mr. Johnson, who was obliged to come down owing to the intense cold, after adding 8 mins. 7½ secs. to the previous record. The following is his account of the flight :—"After ten minutes' flying I knew that I was not dressed warm enough. I was rubbing my legs, sitting on one hand and then on the other to keep them warm. Never did time pass so slowly. The hands of my watch apparently dragged out the minutes. At the end of an hour I signalled my mechanician to give the motor an additional gallon of oil. How warm and cosy the big fire, which the spectators had built, looked to me! I could see them eating apples, and it made me hungry. The motor was running as steadily as a clock, and had not missed an explosion since we started. I thought my watch had stopped—the hands did not seem to move. The last 42 minutes were a nightmare. When I had broken the record, I expected to make it at least four hours, but nothing in the world could have kept me in the air longer with light clothing, and in the intense cold."

The record previous to this was held by George Beatty at Chicago, August 19th, 1911, his time being 3 hours, 43 mins. 22½ secs. Johnson's time was 3 hours 51 mins. 15 secs., which would, in all probability, have been stepped up to the 5 hour mark had it not been so intensely cold.

Messrs. Thomas Brothers were among the very first to realise the advantages of the headless type of biplane, and had conducted experiments in this direction in August, 1910, which



The latest type Thomas Hydro-aeroplane, which is flying well in the States.

resulted in the adoption of this type of machine as standard in December of the same year. The landing chassis on the first Thomas aeroplane consisted of two sets of skids curved upward in front, and carrying a wheel at each end, mounted on two steel leaf springs. This chassis was very satisfactory, and has only recently been modified for the purpose of saving weight. The 70-h.p. model is an exceptionaly fine wind flyer, and flies at the rate of 65 miles per hour in still air.

Flights have been made with these machines in winds of sufficient strength to blow them backwards at the rate of about three miles per hour. Under these conditions the motor has been stopped and a safe landing made in a ploughed field. The "gliding angle" was about 5 in 1 (not 1 in 5). If anybody doubts these statements they can readily confirm them by talking with the old farmer in Bath, N.Y., in whose orchard the above landing was made.

Trick flying is not "standard practice" at the Thomas School, but it is not discouraged provided that the pupils do not tackle stunts beyond their experience. In the case just cited the open space in the orchard was so small that one dare not mention the size. The machine pulled up in about 45 feet on muddy ploughed ground.

Comments and a Moral from Brooklands.

By a Brooklander.

Ages ago, a little Frenchman brought a French biplane to an English motor track and flew it, and people marvelled. They did not know that an Englishman of the name of Roe had done something like it on a British-built machine years before that time. True, he had only hopped about 50 yards, but let it be known that the first man to use Brooklands Aerodrome was an Englishman. The fact that flight was within one's grasp caused more sheds to be built, and before long Brooklands was the home of the aeroplane in England. In those days all feet, or rather wheels, turned to Weybridge. The Blue Bird was opened, and flourished. All went merrily and the future of the ground seemed assured.

But now the man who knows the place as it was, and who returns to see the place as it should be, comes nigh to being grievously disappointed. Where are the neatly kept sheds that should be? Where are the well-equipped workshops, the enclosures, the energetic aviators?

Sheds there are in fair numbers. You take a stroll round. Three belong to Mr. Sopwith. Total contents, one Sopwith biplane, several wing sections, a number of metal clips, tool benches for fitters and work benches for carpenters. All fairly busy. Next shed, a Coventry Ordnance biplane, reconstructed after the Military Trials. Next door is the enclosed Avro biplane. Next is the Flanders. At the end of the row are three Vickers sheds, where there is method and activity, and expectation of more to come. They contain two monoplanes and two biplanes, or rather, at the time of writing, one biplane and some pieces, for someone has forcibly removed half the under-carriage, broken a tail-boom, and damaged the port lower plane, to say nothing of the engine and propeller. Between are the Bristol sheds, and here we get the sense of what used to be. There is a store-room and storekeeper. The store-room contains stores, and is not meant for show. A useful supply of spares is kept.

In the shed labelled Hewlett-Blondeau is a tiny blue-winged Caudron, while in the background may be seen the old Perceval biplane. In the end shed of the row is the old Bat, and it is with some emotion that one reads on the rudder, "D. Gilmour."

One crosses the ground to the rest of the sheds, taking the back row first. Shed number one, empty; shed number two, empty. In the third is dear old "Henrietta," engineless, but spruce and flyable as ever. None of the rest of that row of sheds has been opened, to the writer's knowledge, for months. Along the "main road" on the left is the empty Walton-Edwards shed, the Colossoplane having been dismantled and broken up. Then comes the Ducrocq School, where an old but good Farman lives.

Over the road are the Martin Handasyde sheds, and the A.B.C. engine works, which seems to be as busy as it should be, and contains the only power-driven machinery at Brooklands! In the front row of sheds is the Bluebird, the Spencer biplane, a Sommer biplane, with the weirdest automatic stability device, and a shed containing two machines which should be in a museum, not rotting in obscurity. One is the old Avis, with the Hon. Alan Boyle's name on it, and the other is the ancient Anzani-Blériot once flown by Gilmour. There is Mr. Moorhouse's disused monoplane, and another Sommer.

On the ground by the petrol store is the fuselage of an old Roe biplane, with several other ruins, and a plethora of empty cases, the inscriptions on which conjure up memories.

Now the whole point is this. Why has Brooklands only about twelve machines capable of flying? Of these only three or four are monoplanes of modern type. One remembers an aeroplane review held at the Hendon ground, where some twenty machines were on view, and they did not represent the full strength of the aerodrome.

It is not intended to contrast Hendon and Brooklands to the detriment of the latter, but to call attention to the dead-alive state of the Brooklands Colony. It is just a fair sample of the state of the industry in England. Had manufacturers the support they should have, Brooklands would be busy with the testing of new machines, whereas now the arrival of a new machine is a red-letter event, and it is a very long time since a new school was opened. Compare things in France. Translate a day's events in a French aerodrome into English, and laugh at the absurdity of our positino.

"Brooklands was busy on Monday of last week. A military inspector arrived to view the batch of a dozen A.B.C. engines recently ordered for the Royal Flying Corps. During the morning six new Martin-Handasyde monoplanes, with 100-h.p. Green engines, were put through their tests and accepted by the Government. A squadron composed of Vickers monoplanes and Bristol biplanes (Gordon-England type) arrived from Salisbury, and left later for the military aerodrome at Huntingdon. Both the A.B.C. Company and the Perceval people are erecting new workshops to be equipped with electrically-driven wood and metal working machinery." That is as things should be. It sounds funny, does it not? But think of it in the light of how they do things in France, and own that England, and especially Brooklands, is as fast asleep in matters aerial as France is awake.

A Growing Enterprise.

The British Deperdussin Aeroplane Co., Ltd., of 39 Victoria Street, Westminster, have just issued a new catalogue of their machines, which is an exceedingly fine production. Not only does it give many interesting details about the machines themselves, but it gives detailed drawings of one of their latest type, and photographs of their machines in various stages of construction, together with several photographs of the machines flying, one or two of which will be recognised by readers of The Aeroplane, though on the art paper used in the catalogue their effect is greatly enhanced. The Deperdussin School is now the largest monoplane school in this country, and the pupils there are making excellent progress, receiving plenty of attention from the manager, Mr. Brock, and the new school pilot, Mr. Brereton, so those who are thinking of taking up flying would be well advised to make inquiries from the Deperdussin Company.

Concerning Gnome Parts.

The Gnome Engine Co. write that their fitters in England in nearly every aeroplane centre come across spare parts for the Gnome engine which are not made by the Gnome Engine Co., and they wish to warn those who are employing or are interested in Gnome engines to be extremely careful in seeing that all spare parts really emanate from the Gnome factory. The firm point out that it is quite evident that it is highly dangerous to employ spare parts made by other people as the makers' knowledge of the requisite strength, temper, etc., of the metal employed must necessarily be unique. An accident also with a gudgeon pin or any part which has to take a certain strain may easily happen with imitation spare parts, and a very serious accident may be the result. They are of the opinion that it may be that people in this country are purchasing imitation spare parts without knowing it, as they think it hardly seems possible that anyone interested in aviation would venture to use an imitation spare part in a Gnome Aviation Engine.

Lost at Sea.

A wire from Los Angeles states that the bodies of Mr. Horace Kearney and his passenger Mr. Chester Lawrence, journalist, who left there on the 14th to make a flight over the sea to San Francisco have been found in the sea near Rodondo Beach on the 20th.

More Hydro-Aeroplanes.

Rumplers, the constructors of the well-known "Dove" plane, are negotiating for a large piece of land on the Muggel Lake, near Berlin, where they intend erecting a hydroplane station.—B.

The Week's Work.

MONDAY, December 16th.

R.F.C. (Central Flying School).—Very dull, moderate north-west wind. On Maurice Farman 415, Lieut. Allen 14 and 25 mins.; Lieut. Pepper, 18 and 24 mins.; Lieut. Atkinson, 8 mins.; Major Ashmore, 12, 17, and 20 mins.; Eng.-Lieut. Randall, R.N., 25 mins. On Maurice Farman 418, Major Ashmore, 30 mins.; Lieut. Atkinson, 30 mins.; Lieut. Allen, 15 mins. On Short biplane 401, Major Gerrard, R.M.L.I., with Capt. Lithgow, R.A.M.C., 15 mins. On Short 402, Major Gerrard, 5 mins.

R.F.C. (Farnborough).—Moderate westerly wind, very cold. On B.E. 206, Major Burke, 10 mins.; Capt. Becke, 7 mins. On Maurice Farman 215, Capt. Becke, 8 mins. at 1,200 ft. With Sergt. Budworth, Grenadier Guards, 8 mins. at 600 ft. With Sergt. Boyle, Grenadier Guards, 6 mins. at 500 ft. Major Moss, 9 mins. at 600 ft., and with Major E. H. Trotter, Grenadier Guards, 5 mins. at 700 ft. On Bréguet 211, Major Raleigh with Lieut. Chinnery, 15 mins. With Lieut. Joubert de la Ferté 15 mins at 4,000 ft.

Hendon.—At Grahame-White School, in afternoon, Capt. Power doing straights on No. 7 machine with Mr. Louis Noel, later on Mr. R. H. Carr also doing straights with the same instructor.

At Deperdussin School, Lieut. Mapplebeck and Mr. Whitehouse on No. 4 brevet machine doing circuits. M. Deroye also on same machine.

W. H. Ewen School out at 3.30 p.m. Mr. Lewis Turner, after test on 35-h.p. Caudron, handed over to Mr. L. Russell, who made several straights and half circuits, handling machine confidently. Mr. L. Lawford also several straights. M. Baumann busy with 28-h.p. Caudron. Lieut. M. W. Noel making good progress. Mr. Sidney Pickles had out 60-h.p. Caudron taking with him a sealed barograph and flying for 65 mins. He reached an altitude of 7,250 feet, finishing with a beautiful spiral glide.

At Blackburn School, in morning, Mr. H. Blackburn brought out school brevet machine, which he put through interesting evolutions. Afterwards Dr. Christie and Messrs. Glew and Buss spent 25 mins. each doing straights and half turns. All three made first-class landings and reached a good height, flying steadily.

At Bleriot School, M. Gandillon doing straights in afternoon.

Brooklands.—At Vickers School, wind rather high for pupils' work. Mr. Barnwell on No. 5 monoplane, and was brought down outside track with a broken petrol pipe. Field in which landing was made being too small and soft for re-start, wings were taken off and machine wheeled back by road. In afternoon Capt. Salmon with Mr. Barnwell in passenger seat made excellent straights in biplane.

At Ducrocq School, Mr. J. Alcock testing on circuits with new Bristol propeller. Mr. McAndrew circuits and figures of eight, and now ready for brevet.

At Flanders School, Mr. Raynham out just before dark for ½ hour alone, machine glistening in the sky while almost dark down below.

TUESDAY, December 17th.

R.F.C. (Central Flying School).—Sunny. Moderate westerly wind. On Maurice Farman 411, Lieut. Longmore, R.N., with Leading Seaman Bateman, 20 mins.; with Asst.-Paymaster Lidderdale, 13 mins. On Maurice Farman 415, Lieut. Pepper, 10 mins.; Lieut. Allen, 9 mins.; Lieut.-Col. Cook, R.A., 10 mins. On Maurice Farman 418, Major Ashmore, 10 and 18 mins. On Short biplane 402, Major Gerrard, R.M.L.I, with Chief Mechanic Scott, 5 mins.

R.F.C. (Farnborough).—South-westerly wind, very strong, about 25 m.p.h. on ground. On Maurice Farman 215, Capt. Becke, with Major Moss, started for Lark Hill, but could not make any headway against wind, so returned; time flying, 22 mins. On Bréguet 211, Major Raleigh 6 mins. and 14 mins., with passenger. On Bréguet 213, Capt. Beor taxying for 20 mins.

Royal Aircraft Factory (Farnborough).—M. Richet arrived from Hendon on Bréguet with 110-h.p. Canton-Unné. Time, 55 mins. at 4,000 ft. Mr. Verrier arrived from Hendon on new Maurice Farman in very strong wind, did speed and rolling test, then several flights with passenger. Mr. Gordon Bell out morning and afternoon putting two new Short tractor biplanes through tests, flying with usual skill in very tricky winds.

Hendon.—At Grahame-White School, Mr. R. H. Carr on No. 7 doing straights with Instructor Manton in morning. In afternoon, Capt. Power doing straights with Mr. Noel in slight wind.

At Deperdussin School, Mr. Brock tested brevet machine, then handed over to Lieut. Mapplebeck, who took first hall of brevet in good style. Mr. Scott straights and circuits on No. 3. Capt. Macdonell on No. 3, handling well, and Mr. Phelps on No. 2, showing great improvement. Later M. Deroye on 70-h.p. machine.

W. H. Ewen School out at 8 a.m. Mr. Lewis Turner with 35, and after good exhibition handed over to Mr. Russell, who flew straights and half circuits at 100 ft. in confident manner. M. Baumann out with pupils on 28-h.p. Caudron and Blériot No. 1. Lieut. M. W. Noel straights on 28. Mr. E. J. Prosser and R. S. McGregor rolling on Bl. 1. Mr. Turner had initial flight on 60-h.p. Cauldron in rising wind, flying several circuits, and feeling quite at home.

At Blackburn School, good morning's work by Messrs. Laurence Spink Glew, and Buss, after test by Mr. Blackburn. In evening above-named again out for practice of about 25 minutes each, after which Mr. Morris (new pupil) did first roll and expressed surprise at way in which pylons, sheep, and other things animate and inanimate get in the way; still, he made very creditable straight roll before getting out of machine.

At Bleriot School, Lieut. Loftus Bryan did a nice straight flight on No. 1 taxi at about 20 ft. and landed well. M. R. Desoutter also did straight. M. Gandillon did excellent circuit at 60 ft. on No. 3, landing well.

Brooklands.—At Vickers School, Major Cameron and Capt. Salmon long spell on biplane before breakfast, Mr. Barnwell behind. Both doing very well and ready for solo work. Mr. Knight meanwhile had out other biplane for tests, and afterwards went behind Capt. Salmon for more straights before breakfast. In afternoon both biplanes out, Major Cameron, Capt. Salmon and Mr. Lane piloting.

At Ducrocq School, Mr. J. Alcock circuits in gusty wind, also in evening flying across country in usual style.

At Flanders School, Mr. Raynham out again about dusk, climbing to 2,000 ft. and circling around for ½ hour.

WEDNESDAY, December 18th.

R.F.C. (Central Flying School). Very dull and some rain, strong N.W. wind. On Maurice Farman 403, Lieut. Longmore, R.N., with Leading Seaman Bateman, 10 mins.; Major Ashmore, 30 mins. On Maurice Farman 411, Lieut. Longmore, with Asst. Paymaster Lidderdale, 18 mins.; with Air Mechanic McNamara, 12 mins. On Maurice Farman 415, Lieut. Atkinson, 21 and 5 mins.; Lieut. Pepper, 19 mins.; Petty Officer Andrews, 15 mins.; Eng.-Lieut. Randall, R.N., 27 mins. On Maurice Farman 418, Major Ashmore, 60 mins.; Lieut. Allen, 35 mins. over Ludgershall-Tidworth-Bulford. On Short 402, Major Gerrard, R.M.L.I., with Leading Seaman Brady, 6 and 8 mins.; Leading Seaman Brady, 7 mins.; Major Gerrard, R.M.L.I., with Capt. Lithgow, 22 mins.

R.F.C. (Farnborough).—Strong south-westerly wind, rain at intervals, very fine after lunch. On Maurice Farman 215, Lieut. Herbert 5 mins., with Mechanic Wilson 26 mins. round Farnham, with Lieut. Vaux 13 mins. Capt. Dawes arrived from Lark Hill on Maurice Farman 214, making very good flight, arriving here at 1.45 p.m. On B.E.201, Capt. Fox, with Lieut. Joubert de la Ferté, 25 mins. at 4,000 ft. On Bréguet 211, Major Raleigh 20 mins. at 3,000 ft. Lieut. Playfair, with passenger, 6 mins., then one flight of 7 mins. alone.

Royal Aircraft Factory (Farnborough).—M. Richet out on Bréguet doing tests, carrying passenger, kit of tools, and full load of fuel, machine lifting quite well. Out again in afternoon, taking passengers. Mr. Raynham arrived from Brooklands on new Flanders monoplane and did several circuits of aerodrome, flying well.

Hendon.—At Grahame-White School, Messrs. Noel and Manton with passengers.

W. H. Ewen School out at 4.20 p.m. Mr. Turner several circuits on 35-h.p. Caudron, but too windy for pupils. Messrs. Noel and Gist rolling on 28-h.p. Anzani-Caudron, and Messrs. Zubiaga and Prosser rolling on Blériot No. 1 under M. E. Baumann.

At Blackburn School, Messrs. Glew and Buss straights 10 mins. each. In evening, Messrs. Buss, Glew, and Laurence Spink straights and Mr. Morris rolling.

At Bleriot School, M. L. Desoutter straights on No. 1. Mr. Bertram Williams had first practical lesson and did quite well.

At Deperdussin School, Mr. Spratt circuits on brevet machine after Mr. Brock testing it. Mr. Scott straights on No. 3 and Mr. Valazzi and Mr. Phelps on Nos. 2 and 3. Lieut. Hor-

dern on No. 2 showed great promise. Instructor Brereton straights on No. 3.

Brooklands.—At Vickers School, morning too windy for flying, and in afternoon brevet flights prevented pupil practice. At dusk, Mr. Knight made short flight on biplane.

At Ducrocq School, Mr. J. Alcock flying circuits in great style with well-banked turns. Mr. McAndrew circuits in gusty wind.

At Flanders School, Mr. Raynham took out machine for ¼ hour before lunch and gave fine exhibition, which he finished with a flight down the passage between two rows of hangars, skimming over the hangars opposite. After lunch, took machine to Farnborough alone. Left about 2.20 and reached 4,500 ft. Completed hour test and speed tests before dark.

THURSDAY, December 19th.

R.F.C. (Farnborough).—South-westerly wind, very gusty, about 25 m.p.h., cloudy and slight rain. On Maurice Farman 215, Lieut. Herbert, 5 mins.; Capt. Pigot, 5 mins. On Bréguet 213, Major Raleigh, 10 mins. and 8 mins.; Capt. Beor rolling for 20 mins., Capt. Musgrave rolling 20 mins., and Lieut. Chinnery rolling 25 mins. Wind and rain stopping further flying.

Brooklands.—At Vickers School, in morning, Mr. Knight giving instruction to Major Cameron and Capt. Salmon on biplane in 15-m.p.h. wind. Wind prevented flying for the rest of the day.

At Bristol School, 7.35 a.m., Mr. Merriam up for three circuits, taking Lieut. Lee in wind.

Hendon.—At Deperdussin School, weather not favourable for pupils, but Mr. Trinaman tested 75-h.p. engine, which proved very satisfactory.

FRIDAY, December 20th.

R.F.C. (Farnborough).—Southerly wind, too rough for flying before lunch. About 3 p.m. Capt. Becke on B.E.206 5 mins., then Lieut. Joubert de la Ferté took machine over, rolling about 20 mins., then flying two straights, handling machine quite well for first time. On Maurice Farman 215, Lieut. Herbert 5 mins. with Sergt. Kesyler 9 mins., with Mechanic Baughan 8 mins. Conditions very bumpy close to ground.

Royal Aircraft Factory (Farnborough).—Mr. de Havilland on B.E.2 making several long flights with passengers, reaching good altitude and doing very fine banked turns. About 2.45 p.m., M. Richet had 100-h.p. Bréguet brought out, did one circuit and then left for Hendon at about 3,000 ft.

Hendon.—At Grahame-White School, Messrs. Noel and Manton out with passengers.

At Aircraft Company, M. Pierre Verrier attempted in morning to deliver machine to Eastchurch, but owing to mist was obliged to give up attempt until afternoon. About 3 p.m. made another attempt, but when about five miles from aerodrome engine gave trouble and stopped altogether, but M. Verrier, with usual skill and judgment, turned round, and after making two circuits of aerodrome made good landing.

At W H. Ewen School, at 4.30 p.m., Mr. Lewis Turner made several flights on 60-h.p. Caudron.

At Deperdussin School, Mr. Brock testing No. 4 machine. Lieut. Mapplebeck took remaining half of brevet in fine style, at one time reaching 500 ft. Lieut. Porte, with passenger, made very fine flight of about 20 mins. on 100-h.p. machine. M. Deroye took 75-h.p. machine out for 15 mins. in very good style, landing neatly. At one time three Deperdussins in air, making very fine picture.

Brooklands.—At Bristol School, Mr. Merriam with Lieut. Thompson as passenger. Mr. Bendall alone. Later Mr. Merriam up again. Capt. Powell, Lieut. Empson and Mr. Ewing straights. Mr. Merriam with Lieut. Lee. Capt. Powell made first circuits splendidly. Lieut. Empson figures of eight. Mr. Ewing circuits.

At Ducrocq School, Mr. J. Alcock fine cross-country flight in gusty wind, circling round Woking and Molesey, and flying for over half hour.

Aeronautical Accessories.

A new concern devoted to aeronautical supplies, etc., has recently been started at 39, St. James' Street, S.W., under the above title, and with the active guidance of Messrs. Midwinter and Feary, who founded Aeros, Ltd. Mr. N. A. Feary is known individually to a large section of the industry. His experience is extensive. He was one of the orginal Grahame-White staff, served some time as an engineer in the testing laboratory of Frederick Lamplough, Ltd., of Willesden, where tests on two-stroke aero engines and solid petrol as fuel, carried out simultaneously, added to his engineering knowledge. He was for some time resident in South America as engineer to a large undertaking, and, arriving in England in 1908, he entered aviation and went into partnership with Mr. A. N. Grose, another of the original Grahame-White staff. As their machine came to grief owing to engine trouble, Mr. Feary worked for various firms, including the A.S., Ltd., of Valkyrie fame, and Mr. Sopwith's works at Brooklands. Such practical experience at the disposal of the firm is naturally of considerable value. Helmets being at the moment very much in the air, it is well to note that the firm has secured the sole agency for the Warren helmet, which is very popular. The writer saw four or five being worn last Saturday at Hendon, and their use is rapidly spreading to Brooklands and Shoreham, and naval and military officers are evincing keen interest in it, several officers of the Royal Flying Corps having already bought them. Several new developments are going strong, one being a special aviation suit in the thickest of pliable leather. The price ranges from six to seven guineas, which, compared with the eleven to twelve guineas charged by some makers, is certainly reasonable.



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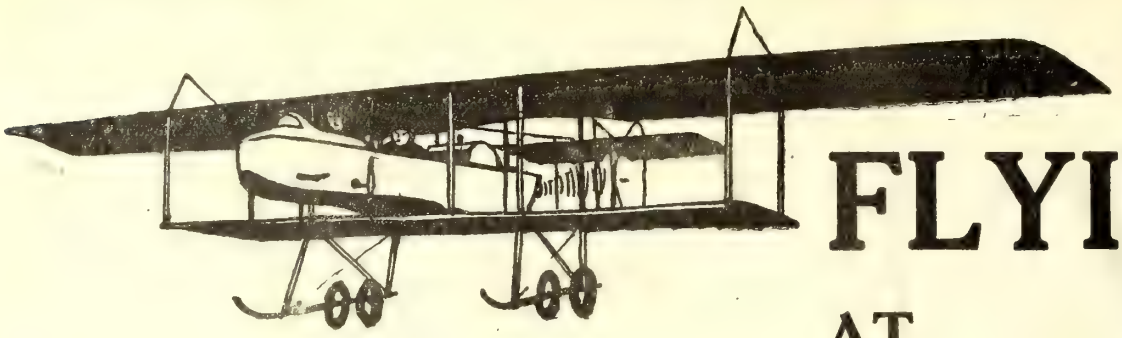
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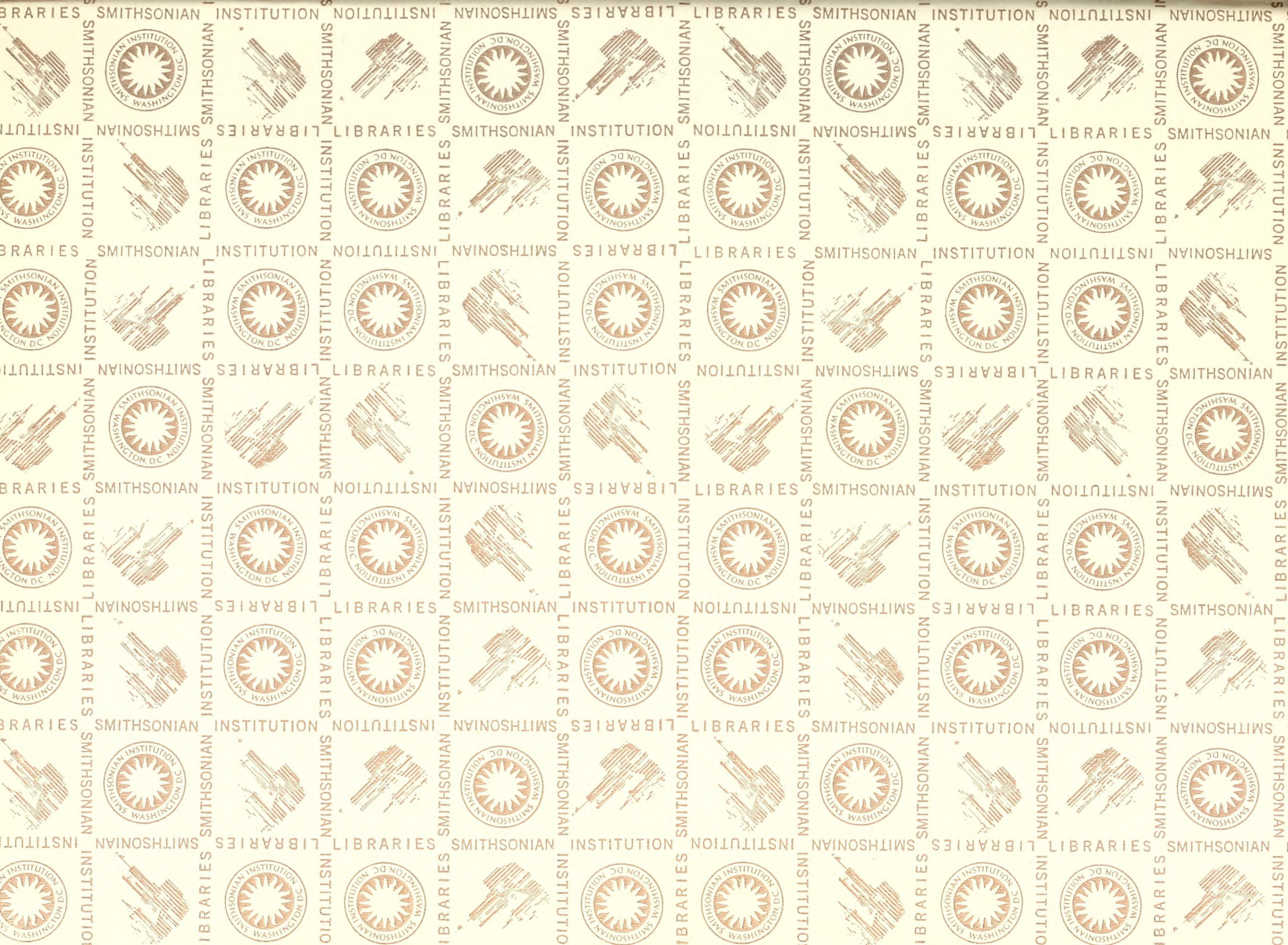
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